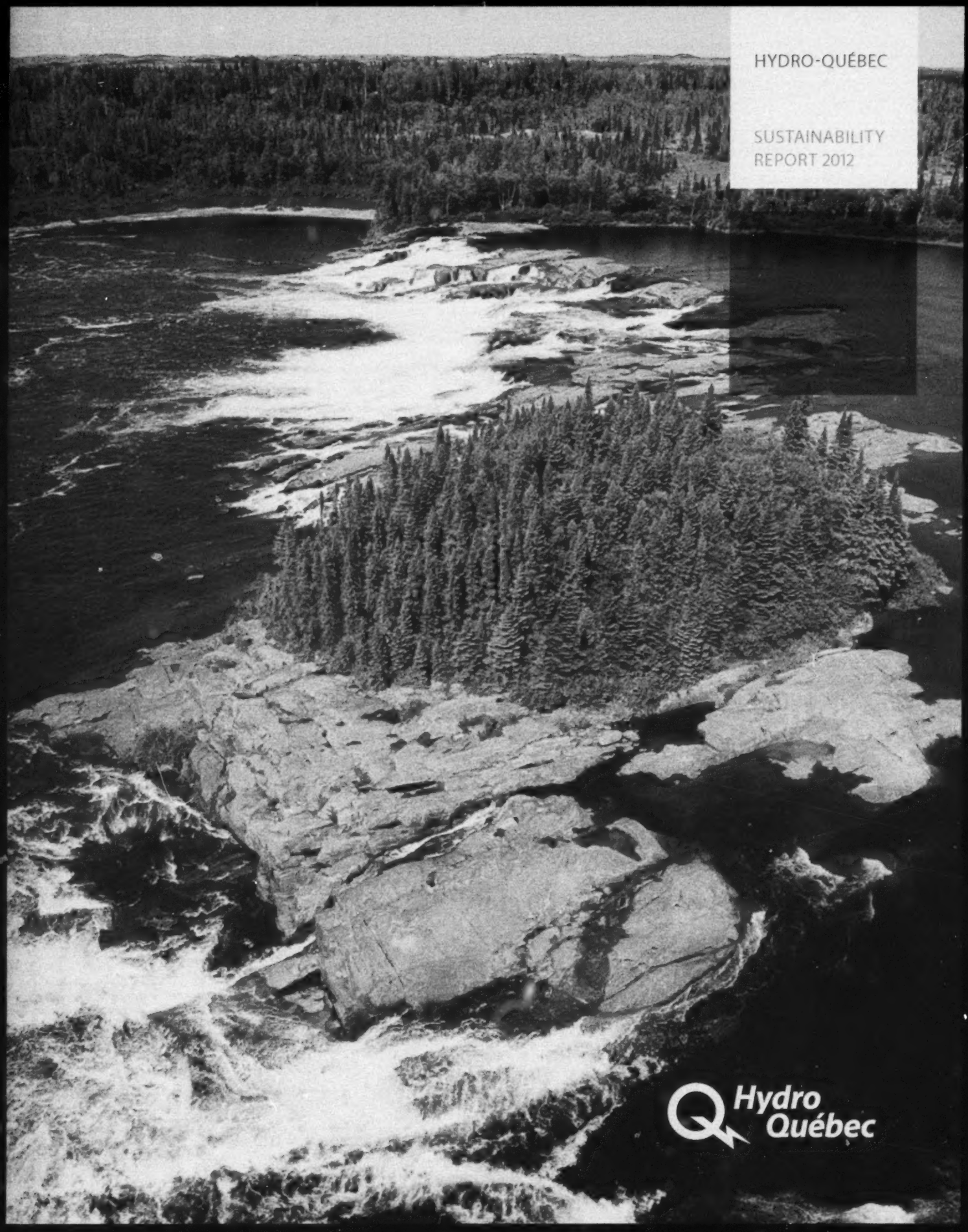


HYDRO-QUÉBEC

SUSTAINABILITY REPORT 2012

Hydro Québec

HYDRO-QUÉBEC

Hydro-Québec generates, transmits and distributes electricity. Its sole shareholder is the Québec government. While using hydropower, it supports the development of other technologies—such as wind energy and biomass—through purchases from independent power producers. It also conducts R&D in energy-related fields, including energy efficiency. The company has four divisions:

HYDRO-QUÉBEC PRODUCTION
generates power for the Québec market and sells power on wholesale markets. It is also active in arbitraging and purchase/resale transactions.

HYDRO-QUÉBEC TRANSÉNERGIE
operates the most extensive transmission system in North America for the benefit of customers inside and outside Québec.

HYDRO-QUÉBEC DISTRIBUTION
provides Quebecers with a reliable supply of electricity. To meet needs beyond the annual heritage pool, which Hydro-Québec Production is obligated to supply at a fixed price, it mainly uses a tendering process. It also encourages its customers to make efficient use of electricity.

HYDRO-QUÉBEC ÉQUIPEMENT ET SERVICES PARTAGÉS
and Société d'énergie de la Baie James (SEBJ), a subsidiary of Hydro-Québec, design, build and refurbish generating and transmission facilities, mainly for Hydro-Québec Production and Hydro-Québec TransÉnergie.

2 Major Facilities and Generating Stations Serving Off-Grid Systems
3 Message from the President and Chief Executive Officer
4 About This Report
5 Message from the Executive Vice President – Corporate Affairs and Secretary General
6 Governance
13 Climate Change
15 Demand-Side Management
18 Energy Portfolio
27 Acceptability and Spinoffs from Projects and Operations
30 Responsibility for Electricity Service
33 Innovation
36 Health and Safety
38 Human Resources
40 Investing in the Community
42 Our Performance and Global Reporting Initiative Index
44 Independent Assurance

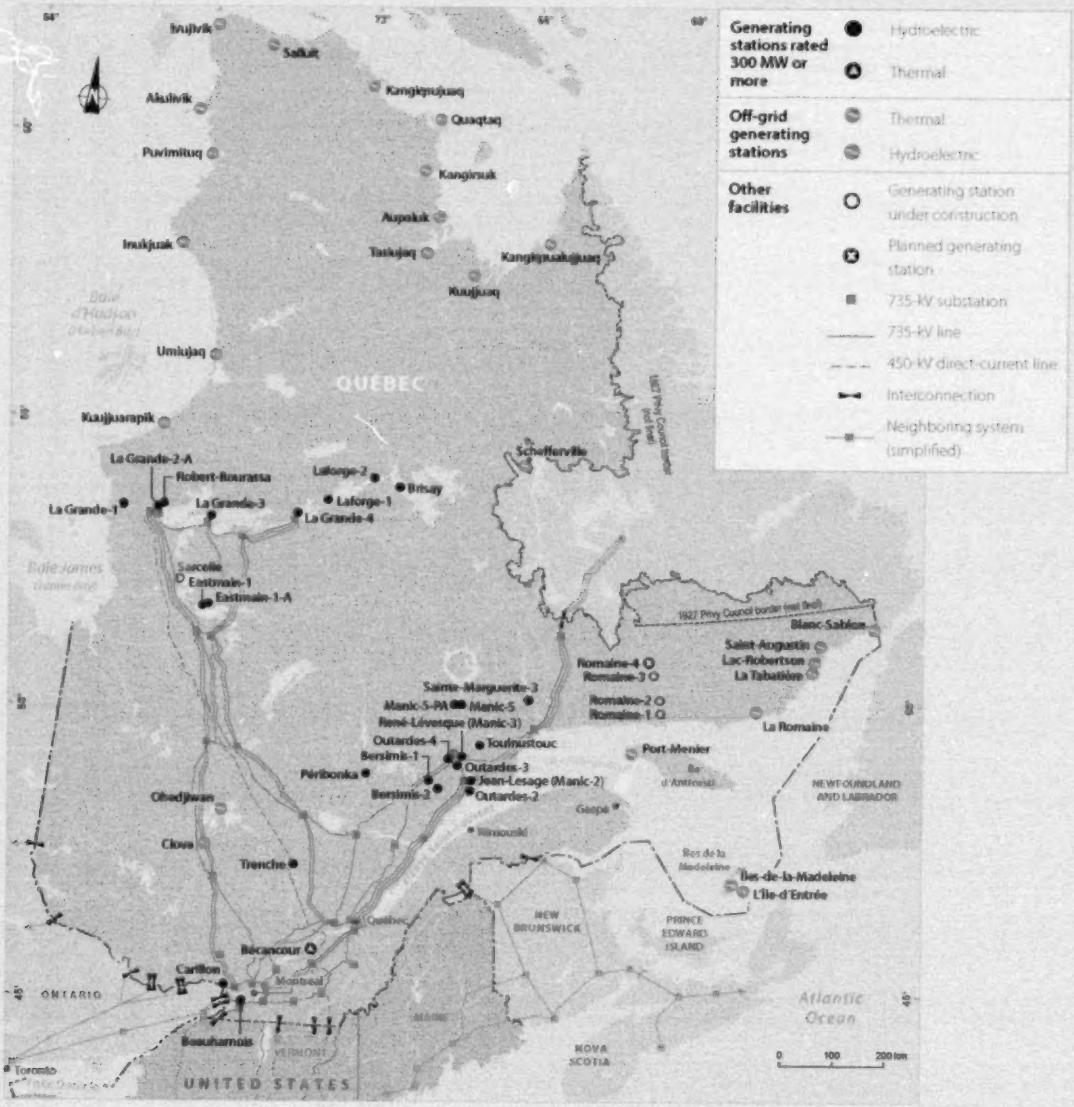
On the cover: The beauty of Chutes à Charlie will be preserved after the Rivière Romaine has been developed. The falls lie 35 km from the river's mouth and 15 km downstream from the future Romaine-1 generating station. Once the flows have been regulated, the quality of a nearby Atlantic salmon spawning ground will be maintained through various means, including an instream flow regime. All aspects of the local Atlantic salmon's life cycle will be studied extensively as part of the Romaine project environmental follow-up.

Page 1 Near Papineauville, in the Outaouais region. Our transmission system meets the most stringent reliability standards, in spite of its vast size and the harsh climatic conditions to which it is subjected.

Supplying clean energy helps ensure quality of life. Meeting people's current electricity needs in a sustainable way is very important. It is also crucial to use resources wisely and preserve the quality of the environment for future generations. Québec long ago opted for hydroelectricity, a clean, renewable energy source. Today, Québec is actively involved in the fight against climate change in North America.

Hydro-Québec has a sustainability vision that goes well beyond the environment. We endeavor to see that stakeholders participate in our decisions. We are also determined to ensure the company's economic viability and contribute to the province's economic vitality.

MAJOR FACILITIES AND GENERATING STATIONS SERVING OFF-GRID SYSTEMS



HYDRO-QUÉBEC GENERATING FACILITIES – 2012

FACILITIES[a]	NUMBER	MW	NET OUTPUT (GWh)
Hydroelectric generating stations	60	35,125	167,254 (97.6%)
Nuclear power plant	1	N/A[b]	3,906 (2.3%)
Thermal power plants	26	704	282 (0.2%)
Total	**87**	**35,829**	**171,442 (100%)**

a) One hydroelectric generating station and 24 of the 26 thermal power plants serve off-grid systems.

b) The installed capacity of Gentilly-2 nuclear generating station is not included in this total since this facility ceased to operate on December 28, 2012.

Note: In addition to the generating capacity of its own facilities, Hydro-Québec also has access to almost all the output from Churchill Falls generating station (5,428 MW) under a contract with Churchill Falls (Labrador) Corporation Limited that will remain in effect until 2041. It also purchases all the output from 15 wind farms (1,349 MW) and 3 small hydropower plants (23 MW), and almost all the output from 7 biomass cogeneration facilities (114 MW) operated by independent power producers. Moreover, 1,149 MW are available under long-term contracts with other suppliers.

MESSAGE FROM THE PRESIDENT AND CHIEF EXECUTIVE OFFICER

A Year of Challenges

Hydro-Québec posted a result from continuing operations of $2.7 billion, a performance that surpasses the 2011 result and the projections in our *Strategic Plan 2009–2013*. This result was achieved in spite of decreased demand in the industrial sector in Québec. At the same time, electricity prices on markets outside Québec tracked those of natural gas, which declined due to the combined effect of two factors: heavy production of shale gas in the United States and relatively slow growth across North America.

Under these conditions, we had to step up our efforts to increase the volume of our exports and reduce our operating expenses at a time when our assets are growing.

ASSET GROWTH PLAN

We continued our work on transmission system expansion to keep pace with native-load growth, integrate new output and carry increasing volumes of inter-regional power flows. In terms of generation projects, the year began with the commissioning of the third and final generating unit at Eastmain-1-A powerhouse (768 MW). Sarcelle powerhouse (150 MW), which is part of the same project, will follow suit in 2013. At the $6.5-billion Romaine complex, construction of the Romaine-2 development passed some important milestones in 2012, and commissioning is scheduled for late 2014. Downstream, work on Romaine-1 began in preparation for commissioning in 2016. Upstream, construction of the road and facilities required for work to get under way at Romaine-3 and Romaine-4 is proceeding as planned. In this way, Hydro-Québec is continuing to tap the province's hydropower potential with a view to sustainability.

MORE EFFICIENT SERVICE

Today, Hydro-Québec's customers still enjoy electricity rates that are among the lowest in the world. Our domestic customers benefited from a rate reduction of 0.45%, effective April 1, 2012—the second consecutive annual rate cut. Prompted by our ongoing endeavor to achieve the highest levels of customer service quality and our concern for efficiency, we demonstrated to the Régie de l'énergie the advantages of an advanced metering infrastructure for both customers and Québec as a whole. The Régie approved the installation of 1.7 million next-generation meters and data transmission equipment in the greater Montréal area between 2012 and 2014. These meters will allow us to record customers' power consumption without having to access their premises and will facilitate certain frequently performed operations, such as those related to moving. They will also help reduce outage duration. Ultimately, we plan to install 3.75 million next-generation meters throughout the province.

CONTRIBUTING TO THE FIGHT AGAINST CLIMATE CHANGE

Hydro-Québec's net exports in 2012 helped avoid 16 million tonnes of CO_2 emissions—equivalent to annual emissions from more than 4 million vehicles. The company is also keeping up with advances in electric-vehicle technology. Our development work on battery materials and electric motors is ongoing, as is our involvement in setting up the first public charging network.

We firmly believe in our employees' commitment to sustainability. Thanks to them, we are on a steady course toward meeting the challenges that lie ahead.

Thierry Vandal

President and Chief Executive Officer

ABOUT THIS REPORT

The *Sustainability Report 2012* describes Hydro-Québec's performance with respect to its main environmental, social, economic and governance issues. This edition, published in May 2013, is the eleventh such report produced by Hydro-Québec.

SCOPE

The *Sustainability Report 2012* mainly addresses the issues and impacts of Hydro-Québec's activities in Québec from January to December 2012.

NEW FEATURES

To meet stakeholder expectations and improve our sustainability reporting practices, we have introduced the following new features in this report:

- Publication exclusively in electronic format.
- Greater complementarity between information published in the report and on the dedicated sustainable development Web site.
- Adherence to the AA1000 AccountAbility Principles Standard 2008, which is based on the following three principles:
  - Inclusivity – an organization shall reflect the views of its stakeholders.
  - Materiality – an organization shall identify its material issues.
  - Responsiveness – an organization shall respond to stakeholder issues that affect its performance.

MATERIALITY ANALYSIS

Hydro-Québec consulted internal and external stakeholders in fall 2011 on the materiality of the subjects addressed in its Sustainability Report. The object was to define the major issues to be discussed in the 2011 report and the present report; other issues are covered only on the Web site. To learn the results of the materiality analysis and the approach used for this exercise, consult the Materiality Analysis section of the sustainability Web site.

COMMUNICATION TOOLS

To reach the largest possible number of stakeholders, Hydro-Québec employs various tools for communicating and reporting on its sustainability:

- *Sustainability Report 2012*
- A sustainable development Web site containing further details
- A brochure presenting 2012 sustainability highlights
- *Sustainable Development Action Plan 2013-2016*
- A section of the *Annual Report 2012* dedicated to sustainability
- Videos
- Presentations at various events (exhibitions, conferences, symposiums, etc.)

A COMPLETE, ACCURATE, BALANCED REPORT

Stakeholders expect Hydro-Québec's Sustainability Report to be complete and that the information presented be accurate and balanced.

The information contained in this report has been carefully gathered and validated. In addition, an outside firm conducted an independent evaluation of compliance with the AA1000 AccountAbility Principles Standard 2008 and of some quantitative data. Verified data are accompanied by the symbol ✓. An independent assurance statement is supplied on page 44.

GRI GUIDELINES

This report draws on the Global Reporting Initiative (GRI) G3.1 guidelines and Electric Utilities Sector Supplement. These standards ensure the credibility and quality of sustainability reporting. The GRI has confirmed that the report complies with application level B+ of its six-level guidelines. Readers can consult the partial GRI index on page 43 of this report or the complete index in the Hydro-Québec's GRI compliance section of the Hydro-Québec Web site.

COMMENTS ON THIS REPORT

We would like to know what you think of our report. Please submit your questions and comments.

EXCLUSIVE WEB CONTENT

- Materiality analysis: approach and results
- Hydro-Québec's GRI compliance

MESSAGE FROM THE EXECUTIVE VICE PRESIDENT – CORPORATE AFFAIRS AND SECRETARY GENERAL

Evolution of Governance

Sustainability governance at Hydro-Québec continues to evolve in line with best practices. The company introduced environmental clauses in its supply contracts several years ago and recently adopted a Supplier Code of Conduct that makes ethics the cornerstone of its business relationships. Similarly, our first Sustainable Development Action Plan, published in 2009, was followed in spring 2013 by a new edition covering the period from 2013 to 2016.

Hydro-Québec published its first Sustainability Report in 2002. Since then, with a view to continuous improvement, we have regularly submitted our report to experts who provide recommendations for promoting greater integration of Global Reporting Initiative guidelines, such as stakeholder participation, information materiality and maintaining a balance in the way each topic is addressed.

A materiality analysis carried out in 2011 resulted in an overhaul of the report's structure. With the current edition, we are entering a new phase by drawing inspiration from the AccountAbility AA1000 APS (2008) standards. This report has been evaluated in accordance with the AA1000 Assurance Standard (2008), which guarantees the credibility and quality of the company's performance and reporting. Additionally, the Web site dedicated to sustainable development has been revised to improve its complementarity with the report, among other enhancements. To conserve resources, we have further decided that we will no longer produce a printed version of the report.

Beyond these considerations, we hope, above all, that the report will meet stakeholders' expectations. I must also give credit to the tremendous effort made by the many people who contributed to producing it—gathering, processing and validating information. I am very grateful to them all.

Marie-José Nadeau

Executive Vice President – Corporate Affairs and Secretary General

GOVERNANCE

Hydro-Québec's head office in Montréal, a building certified BOMA BESt – Level 3.

As a government corporation, Hydro-Québec meets the expectations of its shareholder, the Québec government, which in turn meets the expectations of the Québec public. This close connection with Quebecers' needs and wishes was a factor in promoting the application of the principles of sustainability in all of the company's areas of activity.

SUSTAINABILITY AND GOVERNANCE AT HYDRO-QUÉBEC

Corporate governance is based on 13 company policies approved by the Board of Directors and various codes of conduct that reflect the company's commitment with respect to the main sustainability issues. The principles laid out in the policies are implemented by the administrative units by such means as the Strategic Plan and the Sustainable Development Action Plan.

RESPONSIBLE PROCUREMENT

Responsible procurement involves integrating environmental and social criteria into the process of acquiring goods and services. This practice helps reduce environmental impacts, increase social spinoffs and enhance an organization's economic viability throughout the life cycle of its products.

For the last few years, Hydro-Québec has participated in the responsible procurement activities of ECPAR (Espace québécois de concertation sur les pratiques d'approvisionnement responsable), of which the company is a founding member. We have drafted product purchasing guides that include sustainable specifications and carried out life cycle analyses for certain products and services.

2012 HIGHLIGHTS

- We published the Supplier Code of Conduct, which sets out the expectations of Hydro-Québec and its subsidiaries with respect to suppliers with whom they have a business relationship, and their subcontractors. The cornerstone of the Code is ethics. This means that, in their business relationship with Hydro-Québec, suppliers must act with integrity, honesty and professionalism, and with due respect for human rights and the environment.

FINANCIAL RESULTS

In 2012, Hydro-Québec posted a result from continuing operations of $2,736 million. This performance surpasses the 2011 result and the projections in the *Strategic Plan 2009–2013*, despite the particularly difficult business conditions this past year. Additionally, following the decision to abandon the project to refurbish Gentilly-2 nuclear generating station, the company posted a negative result of $1,876 million from discontinued operations, which is essentially related to the accounting treatment of the permanent shutdown of this facility at the end of the year.

October 10, 2012, was the 50th anniversary of the unveiling of Jean-Paul Mousseau's mural *Lumière et mouvement dans la couleur* which adorns the lobby of Hydro-Québec's head office in Montréal.

Hydro-Québec's President and CEO honored

The Energy Council of Canada named Thierry Vandal Canadian Energy Person of the Year for 2012. This distinction recognizes the achievements of Hydro-Québec's President and CEO in the energy industry in Québec and across Canada, in particular the establishment of favorable conditions for hydroelectric development and the optimization of the company's performance.

MAIN SUSTAINABILITY GOVERNANCE ACTIVITIES

Performance reporting — Accountability

BOARD OF DIRECTORS

- **Seven committees, including:** Governance and Ethics, Environment and Public Affairs, Human Resources
- **Approval or review of publications, including:** company policies, code of ethics, Strategic Plan, Business Plan, Annual Report, Sustainability Report

PRESIDENT AND CHIEF EXECUTIVE OFFICER

- **Approval of the following documents:** internal guidelines, Code of Conduct for employees, Sustainable Development Action Plan
- **Annual management reviews pertaining to environment and health and safety**

HYDRO-QUÉBEC ADMINISTRATIVE UNITS

- **Various internal discussion networks on such issues as environment and occupational health and safety**
- **Maintenance of certified management systems**
- **Environment and sustainability training**
- **Annual management reviews pertaining to the environment**

WHAT ROLE DOES THE ENVIRONMENT AND PUBLIC AFFAIRS COMMITTEE PLAY?

MANDATE

- Provide opinions and make recommendations to the Board concerning:
  - environmental management and compliance, and integration of sustainable development principles
  - public health and safety
  - community relations
  - social responsibility
  - contribution to the community
  - public image
- Receive environmental incident reports and related claims, opinions, investigations and legal proceedings.

2012 ACTIVITIES

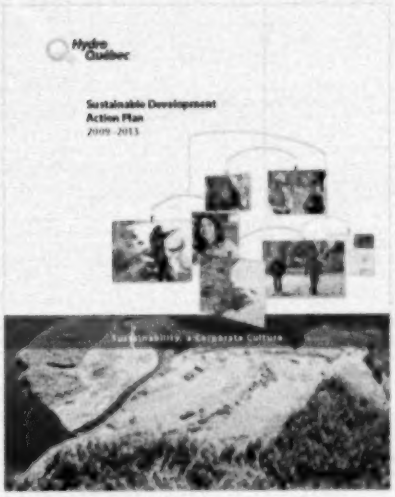
- Discussed the environmental governance framework with the Governance and Ethics Committee.
- Studied the results of the President and CEO's annual environmental management review as well as semiannual reports on environmental compliance.
- Reviewed the *Sustainability Report 2011* and recommended its publication.
- Recommended that the Board approve the granting of donations and sponsorships according to the criteria and rules in effect.
- Examined the *Annual Report 2011* of the Fondation Hydro-Québec pour l'environnement.
- Dealt with various environmental and communication issues.

EXCLUSIVE WEB CONTENT

- Policies and codes of conduct
- Corporate Management and the Board of Directors
- *Hydro-Québec Annual Report 2012*

Sustainable Development Action Plan 2009–2013

Published in March 2009, the *Sustainable Development Action Plan 2009–2013* expresses Hydro-Québec's commitment to Québec's Government Sustainable Development Strategy 2008–2013. It lays out 10 actions in line with the company's business objectives, which revolve around renewable energies, energy efficiency and technological innovation. The numerous initiatives presented in this report reflect Hydro-Québec's contribution to the application of sustainability principles.



ACTION 1 BUILD HYDROPOWER PROJECTS AND CONTRIBUTE TO THE DEVELOPMENT OF WIND POWER

Additional hydroelectric capacity and energy[a]

a) Cumulative results since implementation of the *Sustainable Development Action Plan 2009–2013*.

Eastmain-1-A powerhouse (768 MW) was inaugurated following commissioning of its final generating unit. Factoring in the 138 MW from the Chute-Allard and Rapides-des-Cœurs developments, the 2012 total was 906 MW. The 1,056 MW target will be reached with the upcoming commissioning of Sarcelle powerhouse (150 MW). Construction at the Romaine jobsite made steady progress. For more information, see the projects section on pages 21 to 24.

The Phase 2 turbines of Gros-Morne wind farm went into operation, marking the completion of all the projects associated with the 2003 call for 1,000 MW of wind power. Furthermore, the first three wind farms built in response to the 2005 call (2,000 MW) began delivering electricity, bringing the installed wind power capacity supplied to Hydro-Québec Distribution to 1,137 MW. The other wind power projects resulting from the 2005 call for tenders are moving ahead at a good pace, as are those from the 2009 calls (2 x 250 MW).

ACTION 2 INCREASE THE CAPACITY OF EXISTING HYDROELECTRIC GENERATING STATIONS

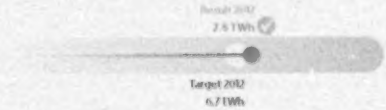
Gains in peak capacity[a]

a) Cumulative results since implementation of the *Sustainable Development Action Plan 2009–2013*.

The target was reached in 2011.

ACTION 3 STEP UP ENERGY EFFICIENCY INITIATIVES

Recurring energy savings[a]



a) Savings achieved since the launch of the Energy Efficiency Plan in 2003, including projects of the Québec government's Bureau de l'efficacité et de l'innovation énergétiques and the CATVAR project.

The programs of the Energy Efficiency Plan generated new savings of 1,007 GWh. Thanks to the CATVAR project and the Bureau de l'efficacité et de l'innovation énergétiques projects to which Hydro-Québec contributes, cumulative results since 2003 totaled 7.6 TWh. The results of the different programs and internal efforts are presented on pages 16 and 17.

ACTION 4 CONTINUE TO HELP LOW-INCOME CUSTOMERS

Number of arrangements with low-income customers[a]

a) Including long-term arrangements.

In 2012, Hydro-Québec reached 57,567 special payment arrangements with low-income customers for a gross total of $237.3 million. The reduced number of arrangements compared to 2011 mainly reflects a decrease in the number of customers in collections. More information is available on page 31.

ACTION 5 REDUCE TRANSPORT-RELATED GHG EMISSIONS

Atmospheric emissions from the vehicle fleet[a]

a) Results and targets restated to reflect the adoption of a new calculation method, effective 2012.

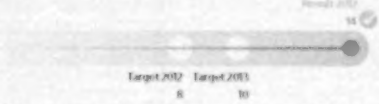
Overall emissions decreased by 12.8% compared to 2005 (60,823 t CO_2 eq.): 18.9% for light vehicles and 6.3% for heavy vehicles. The 10% reduction target by 2013 has been achieved.

Our achievements in 2012 include the purchase of 10 Chevrolet Volts—bringing our fleet to 20—to replace light vehicles. Reducing emissions from heavy vehicles remains an important challenge, which is why Hydro-Québec continued its program to limit their maximum speed and tested an automatic motor stop-start technology on 41 heavy vehicles.

In connection with In Town, Without My Car day, Hydro-Québec received Vélo Québec's Bicycle Friendly Organization Award in the 1,000 Employees and More category (joint winner with CAE).

ACTION 6 PROMOTE REDUCTION AT SOURCE, REUSE AND RECYCLING

Number of at-source reduction or reclamation programs introduced or optimized[a]



a) Cumulative results since implementation of the Sustainable Development Action Plan 2009–2013.

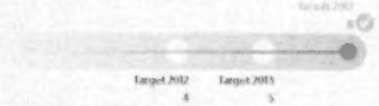
Four programs ended in 2009, three in 2010, three in 2011 and four more in 2012: recovery of electricity meter seals; expanded recovery of plastic packaging; expanded recovery of industrial-use plastics; expanded program for the reintroduction of discarded palettes and addition of palettes for the supply of 167-kVA transformers, guy rods and coiled cables.

Although the 2013 cumulative target has been exceeded, we will maintain our efforts to improve our recovery of residual material over the next year.

As for at-source reduction, a printing pilot project launched in 2012 led to 10% savings in paper.

ACTION 7 ESTABLISH SPECIFICATIONS FOR SUSTAINABLE PROCUREMENT

Number of product purchasing guides that include sustainable specifications[a]

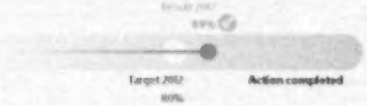


a) Cumulative results since implementation of the Sustainable Development Action Plan 2009–2013.

Two purchasing guides were added in 2012: one for lighting products that covers criteria related to energy efficiency, product toxicity, service life and end-of-life management; and another for indoor floor covering based on criteria such as environmental certifications related to air quality and the source and recycled content of the materials used.

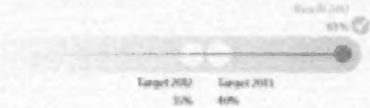
ACTION 8 INFORM AND EDUCATE EMPLOYEES REGARDING SUSTAINABILITY AND THE COMPANY'S APPROACH. HELP EMPLOYEES LEARN TO APPLY SUSTAINABILITY PRINCIPLES TO THEIR DAILY ACTIVITIES

Percentage of employees educated



A telephone survey was conducted to determine the percentage of employees aware of sustainability; 2,036 employees were surveyed. The maximum margin of error of the result is ± 2.1%. An awareness-raising campaign was carried out to provide employees with examples of ways they can contribute to sustainability at work. Other initiatives, such as monthly features and an employee recognition contest (*Mérite du développement durable*), also helped educate personnel. The survey results cannot be compared to previous years since the answer options were modified.

Percentage of employees having sufficient knowledge about sustainability[a]

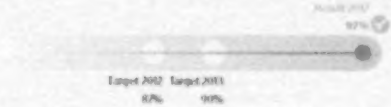


a) Cumulative results since implementation of the Sustainable Development Action Plan 2009–2013.

In 2010, to harmonize with the public administration as a whole, the 40% employee sustainability training objective, initially set for 2011, was pushed back to 2013. Nonetheless, the company made significant efforts in 2011 and 2012 to launch an online training program. Result: the 2013 target was reached.

ACTION 9 IMPROVE VEGETATION CONTROL METHODS ON THE DISTRIBUTION SYSTEM TO BETTER PROTECT BIODIVERSITY

Percentage of vegetation control operations per year with integrated measures for promoting biodiversity



In 2012, a very high percentage of pruning requirements that promote biodiversity were maintained. A leaflet entitled *La biodiversité, un patrimoine précieux à conserver* [biodiversity: a precious heritage to conserve] was distributed to our employees and contractors.

ACTION 10 ORGANIZE SUSTAINABLE EVENTS AND PROMOTE RESPONSIBLE MANAGEMENT OF EVENTS SPONSORED BY HYDRO-QUÉBEC

Average number of contributing measures implemented among the 25 measures selected for the sustainable management of events

In 2012, the performance of 127 events was assessed. Sustainable measures are now well integrated in all of the company's activities, from meetings to special events. An intranet site and various tools have been made available to employees and managers to promote the organization of sustainable events.

Relations with Stakeholders

Owing to the nature of its operations, Hydro-Québec has a presence throughout the province and maintains ongoing relations with its numerous stakeholders. Good dialogue is essential for preserving mutually beneficial relations, obtaining support for important activities and even reconciling diverging interests.

SERGE FORTIN
Vice-President,
Fédération québécoise des municipalités and prefect of the regional county municipality (RCM) of Témiscouata

"The liaison committee for Hydro-Québec and the Fédération québécoise des municipalités is a forum that benefits both Hydro-Québec and the Federation and its members. It allows us to discuss current issues and learn more about the various programs offered by the company that can assist Québec's municipalities, big and small. The topics we cover include energy efficiency, transportation electrification, tender calls for the generation of community wind power, and the introduction of next-generation meters. With the next-generation meters, for example, we were able to demystify concerns related to the radiofrequencies they emit through discussions with specialists from the company. We also talk about future trends in terms of energy, which is an important component of a municipality's development plans. Finally, the committee allows Hydro-Québec to effectively communicate with the representatives of more than 1,000 member municipalities and RCMs."

ALAIN DESCARREAUX
City Manager,
Municipality of L'Ange-Gardien

"In 2009, after Hydro-Québec built Outaouais substation and a few other facilities in the municipality of L'Ange-Gardien, the area received close to $4 million through Hydro-Québec's Integrated Enhancement Program. These funds allowed the municipality to carry out seven community projects. For instance, we built a new city hall, a multipurpose centre and a new fire station, which were all inaugurated in September 2012.

I had the pleasure of coordinating the entire process of project selection, approval and implementation. My team and I were able to count on the constant and very professional support of a number of Hydro-Québec employees. Whether community relations advisors or executives who participated in official activities, each one showed a great deal of interest in our municipality and our projects. They informed and advised us expertly and effectively."

SYLVIE CASTONGUAY
General Director,
Réseau québécois des CFER

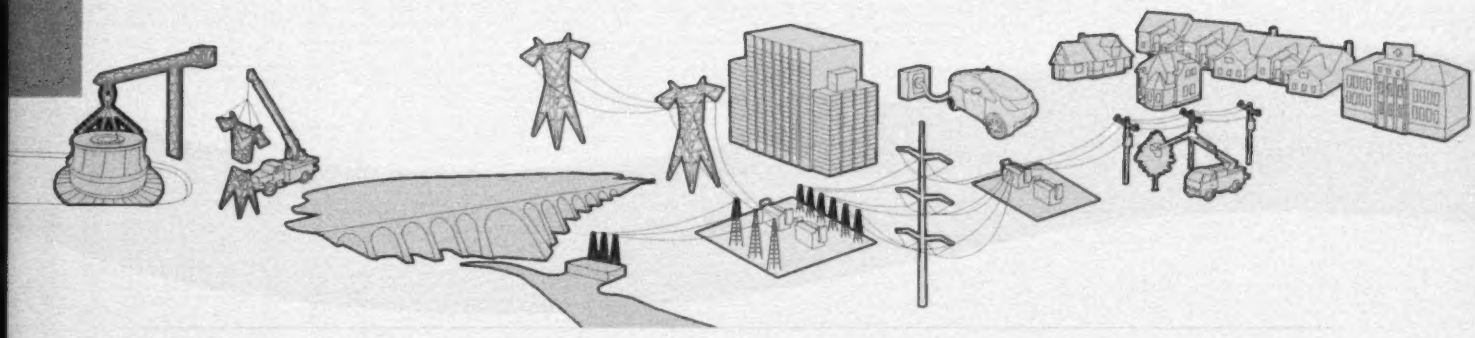
"Our business and recycling training centres (CFER), which are non-profit schools/businesses, help young people aged 15 to 18 train for jobs, while simultaneously contributing to sustainability.

Since 2009, under a partnership with Hydro-Québec, two of our centres have developed expertise in recycling work clothes. All of Hydro-Québec's work clothes are given to us at the end of their useful life. Our students remove any distinctive Hydro-Québec signs, then wash, mend and resell these high-quality products. Through this work, over 24 tonnes of clothes have been diverted from landfills, and a hundred or so students have been able to develop their full potential.

We thank Hydro-Québec for having believed in our young people. As a result of this pilot project, three other government corporations have decided to call upon our services to recycle their work clothes."

STAKEHOLDERS	EXAMPLES OF SHARED SUSTAINABILITY GOALS	EXAMPLES OF MEANS USED	2012 RESULTS
Customers	▪ Service quality and fairness for customers ▪ Reliability of electricity service and supply ▪ Customer satisfaction ▪ Energy savings ▪ Tailored collection services for low-income customers and those with payment difficulties	▪ Table of customer expectations and survey of customer satisfaction ▪ Handling of complaints and claims ▪ Energy efficiency partnerships ▪ Collections working group	▪ Overall customer satisfaction (p. 31) ▪ Complaints and claims (p. 31) ▪ System average interruption duration index (p. 30) ▪ Generation portfolio (p. 18, 19) ▪ Electricity purchases (p. 20) ▪ Energy Efficiency Plan (p. 16, 17) ▪ Payment arrangements with low-income customers (p. 31)
Government authorities	▪ Contribution to government strategies (e.g., Government Sustainable Development Strategy, Québec Research and Innovation Strategy, Climate Change Action Plan, Action Plan for Electric Vehicles and Action Plan for People with Disabilities) ▪ Application of sustainability principles	▪ Partnerships and participation in joint committees ▪ Company's strategic plan ▪ Adoption of internal action plans	▪ Sustainable Development Action Plan (p. 8, 9) ▪ Innovation (p. 33–35) ▪ Climate change (p. 13, 14) ▪ Transportation electrification (p. 35) ▪ People with disabilities (p. 38, 39)
Local and Aboriginal communities	▪ Acceptability of projects ▪ Harmonious integration of facilities into the environment ▪ Respect for and preservation of local values and cultures ▪ Social and economic development	▪ Teams in charge of community and Aboriginal relations ▪ Liaison committees with municipal associations ▪ Support for local initiatives in connection with construction projects ▪ Regional economic spinoffs committees	▪ Progress of generation and transmission projects (p. 21–25) ▪ Follow-up on projects in operation (p. 26) ▪ Public participation (p. 28) ▪ Liaison committee for Hydro-Québec and the Québec federation of municipalities (p. 10) ▪ Integrated Enhancement Program (p. 40, 41) ▪ Regional economic spinoffs committees (p. 29)
Investors	▪ Company profitability ▪ Good governance ▪ Risk management	▪ Periodic meetings with investors ▪ Dedicated Web site for investor relations ▪ Annual Report ▪ Codes of conduct	▪ Financial results (p. 6) ▪ Climate change (p. 13, 14) ▪ Codes of conduct (p. 6, 7) ▪ Contribution to the Québec economy (p. 29)
Educational institutions	▪ Advancement of knowledge ▪ Development of a skilled workforce ▪ Education on key issues related to electricity	▪ Support for universities ▪ Research partnerships and open innovation ▪ Internships for university and college students ▪ Knowledge sharing	▪ Support for universities (p. 35) ▪ Partnership with UQTR (p.33) ▪ Partnership for the vehicle-to-grid test program (p.35) ▪ Funding of IEPE (p. 38, 39) ▪ Intern satisfaction (p.39)
Non-governmental organizations	▪ Establishment of mutually beneficial relationships	▪ Working group with consumer associations ▪ Various partnerships ▪ Community investments ▪ Liaison committee with the Union des producteurs agricoles (UPA) [Québec farm producers' union]	▪ Working group with consumer associations (p. 31) ▪ Transportation electrification (p. 35) ▪ Community investments (p. 40, 41) ▪ Agreement with the UPA (p. 25, 28)
General public	▪ Public health and safety ▪ Respect for the environment ▪ Acceptability of projects ▪ Social and economic development	▪ Execution of studies and dissemination of information on public health and safety ▪ Web site and toll-free line (1 800 363-7443) ▪ Videos ▪ Public consultation ▪ Regional economic spinoffs committees	▪ Electric and magnetic fields (p. 36) ▪ Information on radiofrequency emissions (p. 36) ▪ Noise (p. 36, 37) ▪ Studies on mercury (p. 26, 37) ▪ Safety of facilities (p. 37) ▪ Regional economic spinoffs committees (p. 29) ▪ Public satisfaction (p. 42)
Suppliers	▪ Sustainable procurement practices ▪ Economic spinoffs in Québec ▪ Ethical behavior	▪ Participation in the Espace québécois de concertation sur les pratiques d'approvisionnement responsable (ECPAR), a group promoting sustainable procurement practices ▪ Dedicated Web site for suppliers ▪ Economic spinoffs committees ▪ Code of conduct	▪ Sustainable procurement (p. 6, 9) ▪ Centres de formation en entreprise et récupération (business and recycling training centres) (p. 10, 32) ▪ Procurement within Québec (p. 29) ▪ Economic spinoffs committees (p. 29) ▪ Supplier Code of Conduct (p. 5, 6)
Employees	▪ Sustainability principles applied to daily activities ▪ Healthy and safe work environment ▪ Training and skill development ▪ Competent succession	▪ Sustainability awareness and training ▪ Survey on employee engagement ▪ Workplace health and safety committees	▪ Employees with sustainability training or aware of sustainability (p. 9, 39) ▪ Work-related accident frequency (p. 37) ▪ Hydro-Québec workforce (p. 38, 39)
Unions	▪ Harmonious labor relations ▪ Healthy and safe work environment	▪ Training programs offered by the company and unions ▪ Workplace health and safety committees	▪ Harassment prevention training (p. 39) ▪ Collective agreements in effect (p. 38)

Contribution to Sustainability



SECTOR	MAIN ACTIONS	A FEW FIGURES
CONSTRUCTION AND SHARED SERVICES	▪ Prevent and manage environmental impacts ▪ Contribute to the socioeconomic development of the region and maximize economic spinoffs from projects ▪ Design and carry out projects in collaboration with local communities ▪ Complete projects within budget ▪ Practise sustainable procurement ▪ Manage residual materials	▪ 3,478 employees, including 76% governed by an environmental management system (including SEBJ employees) ▪ Two major projects under construction: Eastmain-1-A/Sarcelle/Rupert ($5.0 billion) and Romaine ($6.5 billion) ▪ Over 1,200 projects for the transmission system ▪ Procurement, building management and transportation services ▪ Volume of activity: $2.8 billion
GENERATION	▪ Generate electricity from renewable sources ▪ Manage watersheds, taking into account their use by communities ▪ Protect water bodies and preserve wildlife and vegetation (including their diversity) ▪ Increase the company's profitability by selling energy surpluses	▪ 3,612 employees, including 91% governed by an environmental management system ▪ 61 generating facilities connected to the main grid, including 59 hydropower stations (38 run-of-river) ▪ 26 large reservoirs, 664 dams and 97 control structures ▪ Result from continuing operations: $1,541 million
TRANSMISSION	▪ Reduce energy losses on the transmission system ▪ Harmoniously integrate our equipment (lines and substations) into their surroundings and reduce their impacts on the environment ▪ Effectively manage intermittent wind energy output while guaranteeing service quality and reliability ▪ Maintain rights-of-way, taking into account sensitive elements in the area	▪ 3,095 employees, all governed by an environmental management system ▪ 516 substations, 33,639 km of lines and 169,996 ha of line rights-of-way to be maintained ▪ 17 interconnection points with the Atlantic provinces, Ontario and the U.S. Northeast ▪ Result from continuing operations: $581 million
DISTRIBUTION AND CUSTOMER SERVICE	▪ Encourage customers to save energy ▪ Ensure a reliable supply of electricity and promote renewables ▪ Ensure high-quality service for Quebecers ▪ Support low-income customers experiencing payment difficulties ▪ Promote safe use of electricity	▪ 6,786 employees, all governed by an environmental management system ▪ 25 generating facilities connected to off-grid systems: 24 thermal generating stations and 1 hydroelectric generating station ▪ 114,649 km of lines ▪ 4,107,426 customer accounts in Québec ▪ Net result: $503 million
TECHNOLOGICAL INNOVATION	▪ Implement innovative solutions to ensure facility safety and long-term operability ▪ Contribute to the development and integration of renewables ▪ Contribute to the development of electric transportation ▪ Develop and implement information and communication technologies (ICTs) that reduce the environmental impact of support activities	▪ 2,718 employees, including 96% governed by an environmental management system ▪ Activities: R&D, telecommunications and IT ▪ Extensive private telecommunications network with 997 geographic locations ▪ Annual budget allocated to Hydro-Québec's research institute: $100 million
MANAGEMENT AND SUPPORT OF OUR BUSINESS UNITS	▪ Oversee risk management ▪ Ensure effective communication ▪ Ensure a well-qualified, committed workforce ▪ Establish and supervise the application of codes of conduct ▪ Ensure community investments that benefit communities	▪ 1,931 employees, who are not governed by an environmental management system ▪ Activities: governance, accounting and control, human resources, communications, regional and municipal affairs, industrial security, finance, auditing, etc.

CLIMATE CHANGE

In the Côte-Nord region, Hart-Jaune dam and Petit Lac Manicouagan, which serves as its reservoir.

Thanks to the choice of hydropower, today Québec boasts one of the best GHG emission records in North America. The abundance of water resources has allowed electric heating to largely replace heating through polluting sources like wood, coal and oil.

In addition, Hydro-Québec exports its product to neighboring provinces and states in Canada and the U.S., allowing them to replace thermal energy with clean energy. Since 2008, these exports have avoided the emission equivalent of 20 million vehicles per year.

Climate change has become one of the world's most important challenges. In 2012, the Intergovernmental Panel on Climate Change (IPCC) published a report on risk management and adaptation to climate change. The report highlights the growing number of extreme weather events, mainly caused by greenhouse gas (GHG) emissions related to the consumption of fossil fuels, which continues to rise.

In Québec, the situation is different. Quebecers have expertly harnessed their abundant water resources to generate hydropower, while supporting the development of other technologies like wind energy and biomass. This combination of renewables translates into a very low rate of GHG emissions per capita. According to the most recent data (link in French only) from the Ministère du Développement durable, de l'Environnement, de la Faune et des Parcs, Quebecers have the lowest carbon footprint in Canada.

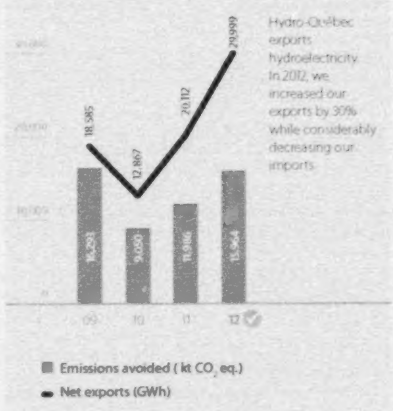
In addition to its positive effect on the province's carbon footprint, the electricity produced by Hydro-Québec is exported to neighboring systems, further contributing to reducing GHG emissions. In 2012, thanks to our net electricity exports, 16 million tonnes of CO_2 emissions were avoided, which is almost the equivalent of the annual emissions of all cars and light trucks on Québec roads (link in French only).

HOW CLIMATE CHANGE WILL AFFECT HYDRO-QUÉBEC'S ACTIVITIES

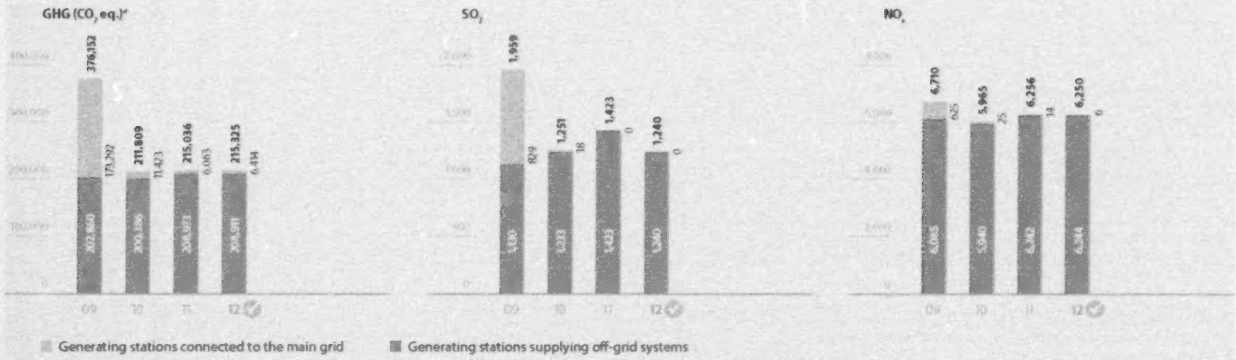
In Québec, climate change could lead to a decrease in the demand for heating and an increase in air-conditioning needs, resulting in an overall decrease in energy consumption.

Climate change could also affect the availability of water resources. According to the Ouranos consortium, there may be an increase in precipitation for all watersheds,

EMISSIONS AVOIDED BY NET EXPORTS OF ELECTRICITY



ATMOSPHERIC EMISSIONS FROM HYDRO-QUÉBEC THERMAL GENERATION OPERATIONS (t)



Most atmospheric emissions are from thermal power plants supplying off-grid systems. Emissions from generating stations connected to the main grid come from La Citière (which ceased operations in 2012) and Bécancour generating stations, used during peak periods.

In 2011, Hydro-Québec recorded CO_2 eq. emissions of 0.0013 t/GWh, compared to 235 t/GWh emitted by all the Canadian Electricity Association member companies combined. Hydro-Québec's SO_2 emissions were 0.0084 t/GWh, compared to the 0.87 t/GWh; and its NO_x emissions were 0.037 t/GWh, compared to 0.45 t/GWh.

a) Data adjusted according to regulatory emission factors.

with significant differences between regions. Combined with a decrease in consumption, this type of increase in runoff could increase resources available for electricity exports.

QUÉBEC REGULATORY FRAMEWORK

On June 3, 2012, the Québec government unveiled its Climate Change Action Plan (CCAP 2020) and its Strategy for Climate Change Adaptation, covering the period from 2013 to 2020. The action plan lays out 30 priorities for achieving Québec's target of reducing GHG emissions by 20% compared with 1990 levels by 2020.

The CCAP 2020 also contains provisions for the establishment of a cap-and-trade system for GHG emission allowances in connection with the Western Climate Initiative, an organization of federated North American states that are working to develop a common approach to fight climate change. In fact, starting January 1, 2013, industrial and electricity sector enterprises with annual GHG emissions of 25 kt eq. CO_2 or more will have to purchase emissions permits for every tonne of GHGs emitted.

Hydro-Québec facilities and activities that will be subject to the system are Cap-aux-Meules thermal generating station, operation of the transmission and distribution systems on account of their sulphur hexafluoride (SF_6) and tetrafluoromethane (CF_4) losses, and electricity imports. An additional fee linked to carbon footprint will be added to the cost of each megawatthour of electricity imported.

2012 HIGHLIGHTS

- Atmospheric emissions from power generation and purchases in Québec were significantly lower than the average for neighboring provinces and states in Canada and the U.S.: 866 t CO_2/TWh (485 times less than the average), 3 t SO_2/TWh (163 times less) and 8 t NO_x/TWh (63 times less).
- La Citière thermal generating station ceased operations.
- Surveys conducted at Eastmain 1 reservoir confirmed a decrease in GHG emissions since the reservoir's impoundment in 2006. Emissions have been stable since 2008 and are comparable to those from natural lakes.

GHG EMISSIONS FROM HYDRO-QUÉBEC OPERATIONS – 2012

CATEGORY	OPERATIONS	EMISSIONS (t CO_2 eq.)
Direct sources (level 1)		
Generating stations	Thermal generating stations	215,325
Mobile sources	Vehicle fleet	53,049
	Hydro-Québec aircraft fleet	12,810
	Utility vehicles (e.g., snowmobiles, tractors, snowblowers)	631
	Propane-fueled lift trucks	91
Fuel use	System maintenance generators	5,281
	Emergency and jobsite generators	1,860
	Building heating	539
Other uses	Equipment containing CF_4 and SF_6	50,430
	Aerosols	311
		340,327
Indirect sources (level 2)		
Energy losses	Power transmission and distribution system losses	13,619
		13,619
Total direct and indirect emissions (levels 1 and 2)		**353,946**
Emissions avoided by net exports of electricity		**15,963,730**

EXCLUSIVE WEB CONTENT

- A clean, renewable energy source
- Characteristics of Hydro-Québec's electricity

DEMAND-SIDE MANAGEMENT

Residential neighborhood in Laval. Meeting energy needs and promoting energy efficiency go hand in hand.

When demand for electricity was on a sharp rise, Hydro-Québec took action to ensure more efficient consumption. The company initially focused on improving the standards of thermal envelopes for buildings. As a result, a residence built today according to the most recent energy standards consumes half the energy of one built prior to these changes.

ELECTRICITY RATES

Hydro-Québec's electricity rates are among the lowest in North America. Since the 1960s, electricity prices in Québec have stayed in line with inflation, making the price of this energy source more stable than either natural gas or oil. It's not surprising that these low, stable rates have attracted many major industrial consumers and prompted a majority of Quebecers to use electric heating. These factors explain why Quebecers are among the world's largest consumers of electricity.

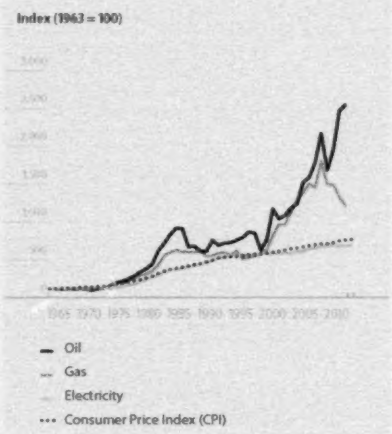
ELECTRICITY SUPPLY PLAN 2011–2020

Every three years, Hydro-Québec Distribution files an electricity supply plan with the Régie de l'énergie. This plan presents Québec's electricity demand forecast over a 10-year period as well as the means that will have to be implemented to ensure a reliable supply.

One year and two years after filing the supply plan, Hydro-Québec Distribution prepares a progress report, which is an update of electricity demand and supply planning.

The November 2012 progress report forecasts energy surpluses of 28.5 TWh from 2012 to 2020, partly due to the impacts of the last recession which particularly affected industrial power demand (electricity sales of 66 TWh in 2012, compared to 73 TWh in 2007). Hydro-Québec Distribution has various tools at its disposal for managing surpluses, including the agreement for suspension of deliveries from Bécancour generating station (TransCanada Energy) and the flexibility associated with the heritage pool.

INFLATION AND TRENDS IN ENERGY PRICES IN QUÉBEC 1963–2013



Sources: Hydro-Québec, Ministère des Ressources naturelles du Québec and Statistics Canada

ENERGY EFFICIENCY

Hydro-Québec promotes energy efficiency through various initiatives. In 2012, customer participation in programs under the Energy Efficiency Plan (EEP) generated savings of 1,007 GWh. When the CATVAR project is factored in, along with projects supported by Hydro-Québec and offered by the Bureau de l'efficacité et de l'innovation énergétiques, total energy savings reached 1.1 TWh. Cumulative results since 2003 totaled 7.6 TWh.

ENERGY EFFICIENCY PLAN

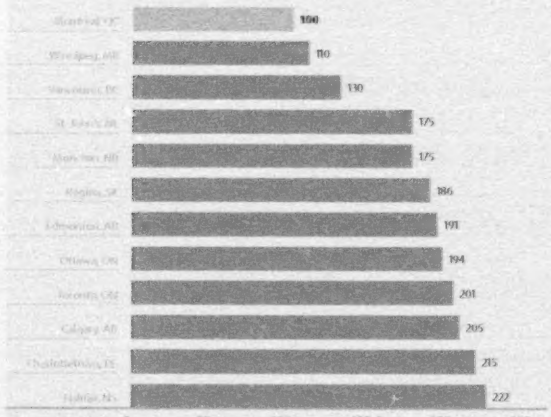
Under the Energy Efficiency Plan, Hydro-Québec invested $1.6 billion between 2003 and 2012 to help its customers save energy. In 2012 alone, a total of $212 million was spent, including contributions to Bureau de l'efficacité et de l'innovation énergétiques projects.

2012 HIGHLIGHTS

Residential customers

- We continued our electronic thermostat replacement program for rental properties: 290,430 thermostats were installed in 2012. The old thermostats are recovered and 90% of their components are recycled. The promotion for new buildings and existing single-family homes ended.
- We launched an LED lighting component, offering a $10 rebate for every purchase of an ENERGY STAR® qualified LED bulb or fixture. LED bulbs have a long service life and consume considerably less energy than incandescent bulbs.
- This year, 355,687 reports were generated through our Date to Compare service, which allows customers to compare their electricity consumption against that of households with a similar profile.
- A total of 14,121 three-element water heaters were installed. These water heaters help reduce power demand during peak periods.
- Under the RECYC-FRIGO Environnement™ program, energy-guzzling refrigerators and freezers are collected and recycled. The recovered appliances are taken out of service and dismantled. All their components are recycled or destroyed in line with strict environmental standards. Since the launch of the program in 2008, 385,849 appliances have been picked up for recycling.

COMPARATIVE INDEX OF ELECTRICITY PRICES AT APRIL 1, 2012 — RESIDENTIAL CUSTOMERS[a]



a) Monthly bill (before taxes) for consumption of 1,000 kWh

In March 2013, the Régie de l'énergie approved a rate increase of 2.4%, effective April 1, 2013. This increase is mainly due to new purchases of renewable energies, given the modest rise in electricity demand in Québec.

- We continued roll out the Refrigerator Replacement for Low-Income Households program, which will cover all of Québec's regions by 2015. A total of 6,993 refrigerators have been replaced since this initiative was introduced in 2011. Other products offered to low-income customers (window replacement, wall and roof insulation, lighting products, thermostats) generated savings of 4 GWh.

Commercial and institutional customers

- Efficient Farming Products program: savings of 13 GWh were achieved, exceeding our objective of 4 GWh. The Program offers more efficient lighting products, high-efficiency fans, etc.
- We continued to offer our integrated energy efficiency service for buildings and achieved savings of 247 GWh, an increase of 66% from the previous year.

Industrial customers

- Our integrated energy efficiency offering continued and 511 new projects were carried out, leading to savings of 472 GWh.
- Hydro-Québec's Energy Savers' Circle welcomed nine new members. This group now boasts over 50 large organizations that have reduced their electricity consumption by at least 5% or 50 GWh per year.

ENERGY EFFICIENCY OF HYDRO-QUÉBEC FACILITIES

Hydro-Québec applies various initiatives to limit system losses and improve the energy performance of its equipment and facilities.

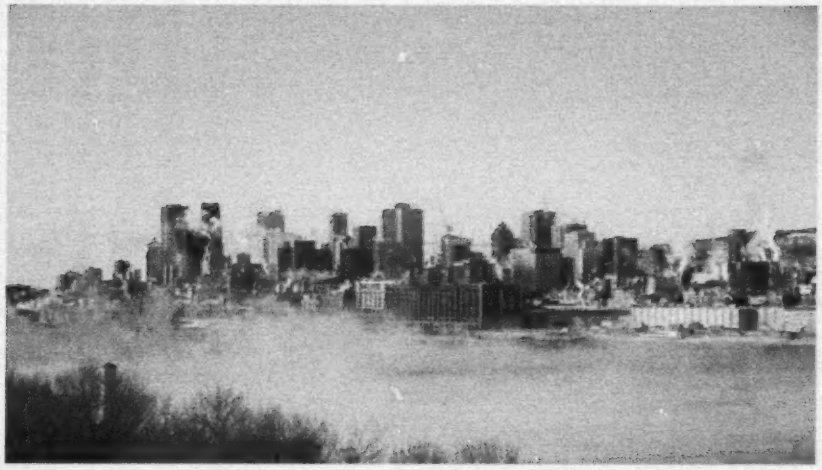
2012 HIGHLIGHTS

- The CATVAR project yielded savings of around 268 GWh. The project has now been deployed in 19 municipalities in Montérégie and Centre-du-Québec. By 2018, we will have installed 1,000 remotely monitored voltage transformers in about 150 satellite substations, providing savings of 2 TWh. The investments required total $152.4 million between 2010 and 2018.
- Implementation of energy efficiency measures in administrative buildings continued, for savings of 3.4 GWh in 2012. Main measures: replacing energy-guzzling equipment at the end of its service life with more efficient models and optimizing operating methods.

EXCLUSIVE WEB CONTENT

- Comparison of electricity prices
- Energy efficiency – Residential customers
- Energy efficiency – Business customers

On January 23, 2013, electricity demand reached a historic peak of 39,120 MW.



Awards

Hydro-Québec earned ENERGY STAR® 2012 market transformation awards in two categories: Utility of the Year – Provincial, and Promotional Campaign of the Year. These are the 10th and 11th awards received by Hydro-Québec as part of Natural Resources Canada's program recognizing leaders in energy efficiency promotion.

RESULTS OF ENERGY EFFICIENCY INITIATIVES (GWh)

	OBJECTIVES				RESULTS[a]			
	2009	2010	2011	**2012**	2009	2010	2011	**2012**
Residential market[b]	485	362	318	313	526	431	398	321
Business market	500	403	369	431	429	506	631	737
Energy savings[c]	**985**	**766**	**688**	**744**	**955**	**937**	**1,028**	**1,059**

a) May have been adjusted following program evaluation.

b) Results include programs offered by the Québec government's Bureau de l'efficacité et de l'innovation énergétiques.

c) Overall total and sum of subtotals may differ due to rounding.

CUMULATIVE RESULTS OF CATVAR PROJECT (GWh)

	OBJECTIVES				RESULTS			
	2009	2010	2011	**2012**	2009	2010	2011	**2012**
CATVAR project	–	138	182	252	109	178	208	268

RESULTS OF ENERGY EFFICIENCY PROGRAMS

	RESULTS[a]			
	2009	2010	2011	**2012**
Residential customers (ENERGY WISE products)				
Electronic thermostats (number)	857,710	580,685	814,646	676,974
Lighting – Compact fluorescent lightbulbs (number)	2,155,566	1,706,783	608,747	283,006[b]
Residential customers (other)				
ENERGY WISE Home Diagnostic questionnaires (number)	151,222	105,800	80,894	35,948
Dare to Compare questionnaires (number)	N/A	N/A	59,978	355,687
Recovered energy-guzzling refrigerators and freezers (number)	119,669	104,523	59,243	35,921[c]
Geothermal energy (number of participants)	288	429	301	521
Commercial and institutional customers (number of projects submitted)				
Buildings Program	426	455	2,014	2,853
Industrial customers (number of projects submitted)				
Industrial Systems Program	255	467	487	562

a) May have been adjusted following program evaluation.

b) The decrease in the number of compact fluorescent lightbulbs is due to the end of the mail-in-rebate program in June.

c) Does not include appliances recovered through the Refrigerator Replacement for Low-Income Households program.

ENERGY PORTFOLIO

The La Grande-3 hydroelectric development: The result of an enlightened choice of clean, renewable energy, supported by vast hydropower resources.

While hydropower development was prompted by the abundance of water, the more recent complementary choice of wind power responds to a desire for regional and industrial economic development.

Hydro-Québec is obliged to maintain capacity and energy reserves at all times. To provide Quebecers with a reliable supply of electricity, the company has an essentially hydroelectric generating fleet. It also purchases electricity generated by other renewable energy sources under long-term supply contracts.

HYDROELECTRICITY

With 10% of the world's total output, Canada produces more hydroelectricity than most other countries. Hydropower accounted for 60% of Canadian electricity generation in 2011. Hydro-Québec is Canada's top power producer, and it uses water to generate 98% of its output.

NET ELECTRICITY GENERATED AND PURCHASED BY HYDRO-QUÉBEC (GWh)

	2009	2010	2011	2012[a]
Hydropower generated	162,766	157,219	165,478	167,254
Hydropower purchased[b,c]	31,417	32,360	32,381	37,523
Biomass and waste reclamation power purchased[c]	1,319	1,323	1,217	1,233
Wind power purchased[c]	1,131	1,419	1,531	2,562
Total renewables	**196,633**	**192,321**	**200,608**	**208,572**
Total energy generated	166,809	160,733	169,017	171,442
Total energy purchased	36,372	43,109	38,520	41,859
Total energy generated and purchased	**203,181**	**203,842**	**207,537**	**213,301**
Renewable energy/total energy generated and purchased (%)	**97**	**94**	**97**	**98**

a) Total and sum of data may differ due to rounding.

b) Includes purchases from Churchill Falls (Labrador) Corporation and independent power producers, including McCormick generating station, in which Hydro-Québec holds a 60% interest.

c) Does not include wind energy, hydroelectric energy and biogas purchases for which renewable energy certificates were sold to third parties.

Some 500,000 lakes and 4,500 rivers cover 12% of the province's surface area. To generate electricity, Hydro-Québec has harnessed 75 rivers on which it operates 26 large reservoirs, 664 dams and 97 control structures. It also shares the use of the water bodies while seeing that their quality is preserved. The water flowing through the turbines of a hydroelectric generating station does not suffer any deterioration and is returned, in its entirety, to the river.

In addition to the hydropower projects in progress (pages 21 to 24), Hydro-Québec is increasing its facilities' generating capacity to optimize their performance. We are also making major investments to connect new generation sources and maintain the reliability of our transmission grid.

2012 HIGHLIGHTS

- In the Baie-James region, we continued to overhaul eight of the sixteen units at Robert-Bourassa generating station, the most powerful facility in our generating fleet. This project, which will go on until 2020, is intended to ensure the long-term operability of the generating units and increase the efficiency of some of the turbine runners, with a resulting annual energy gain.
- Work proceeded on the AUPALE numerical modeling project, which aims to increase generator capacity without compromising service life. We tested this model at Rapides-des-Quinze and Rapide-2 generating stations, in Abitibi-Témiscamingue, and assessed aspects such as potential capacity gain.
- The Régie de l'énergie approved 11 major Hydro-Québec TransÉnergie infrastructure projects, worth a total of $660 million.

OTHER GENERATING OPTIONS

In addition to our hydroelectric generating stations, Hydro-Québec's generating fleet includes 26 thermal power plants, 24 of which supply off-grid systems. The only two thermal generating facilities connected to the main grid are Cadillac and Bécancour, the latter having a very low load factor. La Citière power plant was shut down permanently in March 2012.

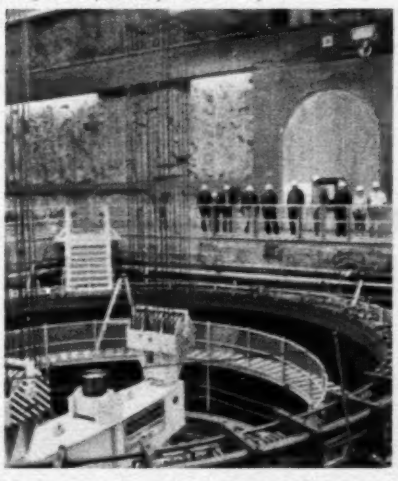
According to studies previously conducted by Hydro-Québec's research institute, IREQ, 9 of Nunavik's 14 villages as well as the Îles de la Madeleine offer potential for wind-diesel hybrid systems. Two integration projects are being studied: one in Kangiqsualujjuaq, where wind generation could start up in 2015, and the other in the Îles de la Madeleine, scheduled to come on stream by 2017. This additional renewable energy would help reduce fossil fuel supply costs and avoid the related greenhouse gas emissions.

In fall 2012, on Hydro-Québec's recommendation, the Québec government announced that the company would not proceed with the refurbishment of Gentilly-2 nuclear generating station, the only facility of this type in operation in Québec. The plant continued generating electricity until the end of December, in accordance with its operating licence. The decommissioning activities provided for in government regulations began in January 2013.

2012 HIGHLIGHTS

- We began the permanent shutdown of La Citière (Montérégie) thermal generating station and the prolonged suspension of generation at the Cadillac facility (Abitibi-Témiscamingue), which will now be used to regulate voltage on the 120-kV grid.

Robert-Bourassa generating station is being refurbished to ensure the long-term operability of this facility.



OTHER RENEWABLES

TYPE OF ENERGY	CURRENT STATUS
WIND POWER	■ Three tender calls, for the purchase of 3,500 MW of wind power, have been completed by Hydro-Québec Distribution since 2003. ■ Tools, modeling and simulations have been developed for integrating wind power onto Hydro-Québec's transmission grid.
BIOMASS	■ We have launched a program for the purchase of 300 MW of electricity produced by forest biomass cogeneration in Québec. ■ Seven cogeneration facilities have been built in Québec in response to tender call, for an installed capacity of 114 MW.
HYDROKINETIC POWER	■ At the experimental stage in Québec: a study was conducted for a pilot project to install a marine turbine in Nunavik and a demonstration project is under way in the Saint-Laurent (St. Lawrence River) near Montréal.

INNOVATION

At IREQ, technician Jean-Philippe Charest-Fournier adjusts the rotor of a model generator used in the AUPALE numerical modeling project.

With its first major jobsites in remote locations, Hydro-Québec innovated and, in 1965, inaugurated the first 735-kV transmission line.

In 1970, Hydro-Québec's research institute, IREQ, began operation. Its technology development and innovation enable the company to maintain its leadership in the industry and innovate with new technologies. IREQ's scientific research and breakthroughs are recognized internationally. Since the institute was created, staff members have obtained some 850 patents and published thousands of articles.

RESEARCH AND DEVELOPMENT

Hydro-Québec is the only power utility in North America to have a high-calibre research centre. IREQ is one of the world's top five electricity research centres and employs 500 scientists, technicians, engineers, specialists and support staff.

IREQ has a number of leading-edge facilities, including LTE, our energy technologies laboratory, which turned 25 in 2012. LTE's work focuses on energy efficiency, consumption management, energy use, renewable energies and distributed generation.

Hydro-Québec conducts over one hundred research projects every year. In 2012, $29 million was invested in projects related to environmental protection, renewable energies, equipment service life and energy efficiency.

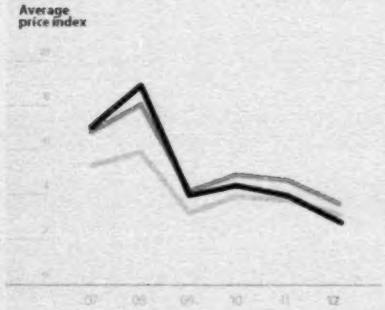
2012 HIGHLIGHTS

- $13 million in revenue was generated by licensing technology for battery materials.
- Two sublicences were granted for the use of lithium metal phosphate (LMP): one to Germany's BASF, the world's top chemical company, and the other to Belgium-based Prayon, world leader in phosphate chemistry. A licence was also granted to Bathium Canada, the Boucherville subsidiary of France's Bolloré Group, for the use of LMP in the manufacture of lithium-metal-polymer batteries.
- A partnership award was presented to Hydro-Québec by the Université du Québec à Trois-Rivières in recognition of the company's contribution to achievement of the university's training and research objectives. The collaboration between the university and Hydro-Québec goes back to 1972.

INNOVATION AND PARTNERSHIP

In innovation, Hydro-Québec has adopted a partnership approach with universities, public and private research organizations here and elsewhere, and industrial partners. This approach allows costs and risks to be shared and provides access to complementary expertise. As part of its support for Québec universities, Hydro-Québec contributes funding to 17 research chairs in fields related to the company's operations.

TRENDS IN ENERGY PRICES ON HYDRO-QUÉBEC'S EXTERNAL MARKETS



- Natural gas: Henry Hub (US$/MMBtu)
- Electricity: New England – ISO-NE, Mass Hub, Day-Ahead Market (USC/kWh)
- Electricity: New York – NYISO, Zone A, Day-Ahead Market (USC/kWh)

After reaching a historic peak in 2008, natural gas and electricity prices in northeastern North America dropped sharply in 2009, then rose slightly in 2010 only to fall again, such that prices in 2012 were at their lowest in 10 years.

Energy trading floor at Hydro-Québec's head office.

ELECTRICITY PURCHASES

Hydro-Québec Distribution's supply strategy makes use of a flexible, diversified energy portfolio, enabling us to ensure reliable electric service that takes fluctuations in demand into account. Beyond the annual heritage pool, anticipated needs are met through long-term calls for tenders and short-term purchases. The energy portfolio comprises 59 long-term supply contracts. Hydro-Québec takes note of government orders regarding the purchase of wind power, biomass and small hydro. The company issues tender calls and signs contracts with suppliers, which must be approved by the Régie de l'énergie. Long-term contracts resulting from tender calls run for 15 to 25 years.

2012 HIGHLIGHTS

- Six contracts were signed, for a total of 167.5 MW, under the program to purchase 300 MW of electricity produced by forest biomass cogeneration in Québec, launched in December 2011. Two plants—Fibrek S.E.N.C. and Resolute Forest Products Canada—with a combined capacity of 59.7 MW have begun supplying us with electricity.
- The Phase 2 turbines at Gros-Morne wind farm went into operation, completing the projects associated with the 2003 call for 1,000 MW of wind power.
- The first three wind farms built in response to the 2005 call (2,000 MW)—Montérégie, Le Plateau and Saint-Robert-Bellarmin—started delivering electricity, bringing the installed wind power capacity to 1,137 MW. The other wind power projects resulting from the 2005 tender call are moving ahead at a good pace, as are those from the 2009 calls (2 X 250 MW).
- The Régie de l'énergie approved the suspension of 2013 deliveries from the thermal generating station in Bécancour (TransCanada Energy). Suspending deliveries is the most economical solution for customers.

ELECTRICITY EXPORTS

Thanks to the operating flexibility of large hydropower, Hydro-Québec Production can meet Québec demand while exporting some of its power. We were able to compensate for the decline in market prices (caused by a substantial rise in U.S. shale gas production) by stepping up exports.

2012 HIGHLIGHTS

- Electricity sales outside Québec: 35.2 TWh (26.7 TWh in 2011).
- Revenue from electricity sales outside Québec: $1,431 million ($1,397 million in 2011).
- Net result from electricity sales outside Québec: $1,233 million ($1,134 million in 2011).

Water use

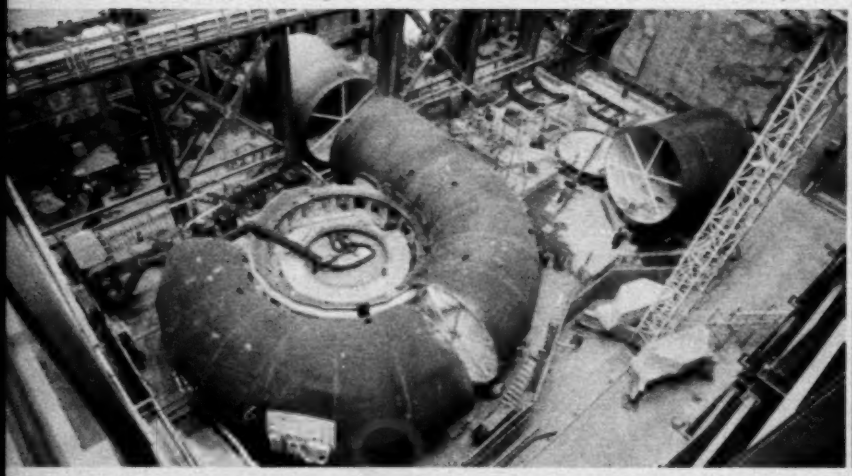
In 2012, the use of 756 million cubic metres of water—including 729 million for Gentilly-2 generating station—was declared under the* Regulation respecting the declaration of water withdrawals, *which applies to water withdrawals of more than 75 m³ per day.

In addition, under the* Watercourses Act, *Hydro-Québec pays the Québec government water-power royalties in proportion to the output of its hydroelectric generating stations. These royalties totaled $617 million in 2012.

EXCLUSIVE WEB CONTENT

- Characteristics of Hydro-Québec's electricity
- Hydro-Québec's generating facilities
- Electricity purchases – Québec market
- Wind farms under contract with Hydro-Québec Distribution
- Hydro-Québec's research institute IREQ

▼ Construction moves ahead at Romaine-2 generating station, in the Côte-Nord region, slated for commissioning in 2014.



▶ Aerial view of Romaine-1 jobsite.

Romaine project

Status: under construction

Cost: $6.5 billion

Region: Côte-Nord

Construction: 2009–2020

Installed capacity: 1,550 MW

Planned annual output: 8.0 TWh

Total economic spinoffs: $3.5 billion for Québec as a whole, including $1.3 billion for Côte-Nord

Unit cost: 6.4¢/kWh (including transmission costs)

Development of the Romaine complex was preceded by an environmental impact assessment (link in French) that lasted over four years and yielded a 2,500-page statement, along with 50 background reports. The environmental follow-up will continue until 2040.

ReNew Canada magazine ranked the Romaine complex as the second-biggest infrastructure project under way in Canada in 2013.

PROGRESS IN 2012

Romaine-1 generating station

- Excavation began in preparation for construction of the main structures: generating station, headrace canal and temporary diversion tunnel.

Romaine-2 generating station

- The envelope of the generating station is now in place.
- Concreting of the intake and excavation of the headrace tunnel are finished.
- Most of the asphalt concrete core of the dam and dikes has been completed.
- Concreting of the spillway began.
- The electrical and mechanical contractor and the turbine manufacturer have started work at the generating station.

Romaine-3 generating station

- The Route de la Romaine was extended 30 km, including a bridge across the Ruisseau Mista.
- Mista workcamp was erected at kilometre 116.
- Road clearing and building were done as far as the sites of the permanent structures.
- The 34.5-kV line was extended from kilometre 84 to kilometre 117.

Romaine-4 generating station

- Work is scheduled to get under way in 2016.

2012 HIGHLIGHTS

- Jobs created: 1,348 person-years (Côte-Nord and Innu workers account for 40% of the workforce).
- Annual investment (not including financing): $650 million.
- Contracts awarded in the region: $743 million.
- 88 sector-specific government approvals were received, as well as three legal non-compliance notices for which corrective measures have been or are now being implemented.
- Composting began at the kilometre 84 workcamp: 4,878 kg of organic material and 2,129 kg of cardboard have been reclaimed since August. The compost will be used in restoring the workcamp sites.
- A recovery site for construction lumber was set up at Romaine-2. The wood will be chipped and used in site restoration once construction is completed.

EXCLUSIVE WEB CONTENT

- Project Web site (in French only)
- *Le SYNCHRO* newsletter (in French only)
- Information bulletin (in French only)

▼ In 2012, a second inventory of forest-dwelling caribou was compiled and telemetric monitoring of 25 females continued.

▶ Electricity received from Romaine-1 and Romaine-2 generating stations will be carried to Arnaud substation via Romaine-2 substation.

EXAMPLES OF ENVIRONMENTAL MANAGEMENT ACTIVITIES IN 2012

FOCUS	ACTIVITIES
Mitigation measures	
Increased access to the territory	▪ The Innus were consulted about building a future snowmobile trail on the right bank, downstream from Romaine-1 generating station. ▪ Engineering studies were carried out for the construction of a snowmobile bridge, in keeping with an agreement with the Havre-Saint-Pierre hunting and fishing association.
Protection of Atlantic salmon	▪ Plans and specifications were produced for the development of salmon spawning grounds and part shelters.
Protection of lake trout	▪ We drew up a plan for developing Romaine 1 reservoir for lake trout.
Consideration of Innu cultural heritage	▪ Natukuna: Medicinal plants were gathered by Innu women in the area of the future Romaine 1 reservoir and the species harvested were discussed.
Environmental follow-up	
Changes in traffic on Route 138	▪ Traffic at the jobsite checkpoint was reduced by 24% as a result of increased workcamp capacity, changes in work schedules and the start-up of a shuttle service.
Workers' hunting and fishing	▪ Hunting and fishing by jobsite workers continued to be monitored. Stocked lakes near Murailles workcamp are still used the most.
Assessment of social impacts	▪ Innu workers were surveyed about their integration and the effectiveness of measures taken to promote their participation in the project. Most of them view their jobsite work experience favorably. They consider that their participation has had a positive impact on their knowledge and skills, their economic situation and their self-esteem.
Atlantic salmon	▪ The follow-up study to establish a baseline for salmon in the Romaine and its main tributaries prior to reservoir impoundment continued.
Partnerships with communities	
Ongoing exchanges with Innu communities	▪ Agreements with Innu communities were monitored through Hydro-Québec–Innu joint ventures, and a permanent forum was established for exchanges and coordination focusing on funds provided by these agreements. ▪ Meetings of the Romaine technical and environmental committees featured presentations and discussions of planned studies that affect the Innu communities; reports were presented on 2011 environmental activities and on follow-up studies. ▪ The *shaputuan* at Murailles workcamp was officially opened, providing a gathering place for Innu workers on the Romaine project.

Expansion of the transmission system in Minganie: Connecting facilities to the transmission grid

Status: under construction

Cost: $1.3 billion

Construction: 2011–2020

The project to extend the transmission system in the Minganie region calls for construction of four 315-kV and 735-kV lines, totaling about 500 km, and four substations as well as changes to Arnaud and Montagnais substations. It will be used to bring the hydroelectric output from the Romaine complex onto the transmission grid.

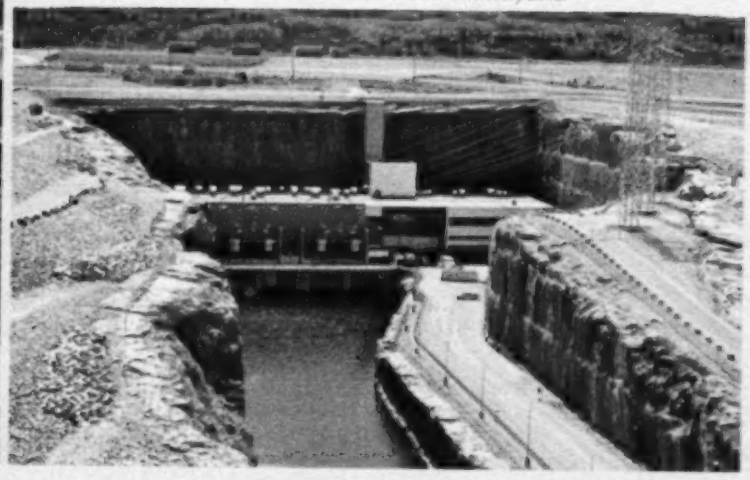
2012 HIGHLIGHTS

- Annual investment (not including financing): $196 million.
- Contracts awarded in the region: $40 million.
- Clearing and construction continued on the Romaine-2–Arnaud line.
- A workcamp was built near Montagnais substation.
- We broke ground on Romaine-2 substation.
- Rivière-au-Tonnerre workcamp opened.
- Work in some areas was interrupted during the moose hunt.
- An agreement was reached for coexistence with snowmobile trail operators.
- As part of the study of the cumulative effects of the construction and connection of the complex, we reviewed our knowledge of the impact of transmission lines on the movements of forest-dwelling caribou and made a detailed inventory of populations present within 20 km on either side of the future Romaine-4–Montagnais line.

EXCLUSIVE WEB CONTENT

- Project Web site

◀ Work at Sarcelle powerhouse is drawing to a close. The three generating units will come on stream in 2013.



▼ Eastmain-1-A powerhouse has been fully operational since its final unit was commissioned in January 2012.

Eastmain-1-A/Sarcelle/ Rupert project

Status: under construction

Cost: $5.0 billion

Region: Nord-du-Québec

Construction: 2007–2013

Installed capacity: 918 MW

Planned annual output: 8.7 TWh

Total economic spinoffs: $2.9 billion for Québec as a whole, including $640 million for Nord-du-Québec

Unit cost: 4.3¢/kWh (including transmission costs)

The Eastmain-1-A/Sarcelle/Rupert project calls for substantial measures to preserve the environment and take the host community's concerns into account.

In November 2012, the provincial review committee (COMEX) held consultations in the six Cree communities affected by the project: Mistissini, Nemaska, Waskaganish, Eastmain, Wemindji and Chisasibi. Hydro-Québec and SEBJ took part in these consultations, which were intended to gather the Crees' opinions on the effectiveness of the mitigation measures implemented to reduce the project's environmental and social impacts. COMEX will submit its report to the Provincial Administrator of the *James Bay and Northern Québec Agreement* in spring 2013.

EXAMPLES OF ENVIRONMENTAL MANAGEMENT ACTIVITES IN 2012

FOCUS	ACTIVITIES
Mitigation measures	
Preservation of fishing activities	▪ Lake sturgeon: 70,000 larvae and 20,000 young-of-the-year were stocked, for a fifth and final year. ▪ Anadromous lake cisco (Smokey Hill): we provided support for Cree fishermen in resuming their use of the Rupert, conducted hydroacoustic surveys to track cisco migration and the formation of fish aggregations, and built dip-net fishing pools, shelters, smokers and access roads to the fishing sites.
Access to the territory	▪ 27 km of access roads, 37 km of ATV trails and 22 km of snowmobile trails were developed. ▪ Two boat ramps were built: one downstream and the other upstream from the instream flow release structure on the Rivière Lemare. ▪ Navigation corridor charts were produced for Opinaca reservoir and Boyd and Sakami lakes.
Site restoration and enhancement	▪ More than 241 ha of land affected by the project was restored: 1,080,000 green alder, jack pine and poplar seedlings were planted over 185 ha, and hydroseeding and machine seeding were done over some 56 ha.
Environmental follow-up	
Effect of winter instream flow in the Rupert on whitefish spawning grounds	▪ Two years of follow-up have shown that the winter instream flow regime did not have any effect on whitefish egg incubation. Consequently, by mutual agreement with the authorities and Cree partners, it was decided that this follow-up would stop as of 2013.
Clearing by natural agents and wood debris in the diversion bays	▪ Third follow-up year: clearing by natural agents (ice, waves and wind) is slow because water level variations are small. No floating or washed-up wood debris was observed either in previously cleared areas of the diversion bays (6.1 km²) or near the hydraulic structures. ▪ The 180 km of marked navigation corridors are quite clear.

▼ We built a weir and a fish pass 223 km from the mouth of the Rupert to protect the environment there.

▶ The great majority of spawning grounds have been preserved, thanks to the instream flow provided by Rupert spillway.

EXAMPLES OF ENVIRONMENTAL MANAGEMENT ACTIVITES IN 2012

FOCUS	ACTIVITIES
Environmental follow-up	
Ice cover for Cree communities and tallymen	▪ The tallymen were given maps describing the ice around each trapline and information sheets providing the results of ice thickness measurements. ▪ Observations of ice cover over three consecutive winters closely corroborate the general ice dynamics described in the impact statement. The ice cover seems to depend more on weather conditions than on project construction. These conditions feature recurring warm spells of variable intensity. The effects of these warm spells on the ice are of concern to the Cree communities and can sometimes lead to confusion between flow-related impacts of the project and weather-related impacts.
Partnerships with communities	
Opinion survey – social, economic and cultural environment	▪ A third opinion survey was conducted among 449 Crees aged 16 and over, and living in the six Cree communities directly affected by the project. ▪ The *Hydro and Friends* radio broadcast and the magazine *The Nation* are the most appreciated communication tools. More than a third of respondents (35%) have either a fairly good or an extremely good knowledge of the project, while two-thirds say they know only a little (38%) about the project or nothing at all (26%). ▪ Some 63% of respondents consider that the project has no impact on their personal lives; 18% think it has a negative impact, 8%, a positive impact, and 11%, both positive and negative impacts. The positive impacts mentioned are related to the project's economic spinoffs. The concerns are related to changes in the land, effects on water quality, ice cover and wildlife, and impacts on the pursuit of traditional activities.

PROGRESS IN 2012

Eastmain-1-A powerhouse

- The final generating unit was commissioned in January.
- The powerhouse was officially inaugurated on June 28.

La Sarcelle powerhouse

- The first two units were tested in July.
- Civil, electrical and mechanical engineering work at the powerhouse was completed.

2012 HIGHLIGHTS

- Jobs created: 731 person-years (Cree workers account for 12% of the workforce).
- Regional purchases and contracts awarded since the start of the project: $910 million (Nord-du-Québec, Saguenay–Lac-Saint-Jean and Abitibi-Témiscamingue).
- Annual investment (not including financing): $130 million.
- More than 1,300 sector-specific government approvals have been obtained since the work began, including 20 in 2012. No legal non-compliance notices were received in 2012.

EXCLUSIVE WEB CONTENT

- Project Web site
- *Hydro and Friends* online
- Web Sees Indohoun Corporation

Development of the transmission system in the northeast Montréal metropolitan region

Status:

- 315-kV Maurice-Lanaudière line: in detailed engineering stage
- 735/315/120-kV Bout-de-l'Île substation: under construction
- 315/25-kV Lachenaie substation: under construction
- 315/120-kV Pierre-Le Gardeur substation: under construction
- 315/120/25-kV Bélanger substation: under construction
- 315-kV tap line for Bélanger substation: awaiting government authorizations

Cost: $698 million

Regions: Montréal and Lanaudière

Construction: 2012–2015

To meet demand growth in the northeast Montréal metropolitan region, Hydro-Québec must boost the transformer capacity of the region's source and satellite substations.

At a number of substations and lines in the current transmission grid whose loads are expected to increase, capacity will soon be exceeded. The development plan comprises various projects.

MITIGATION MEASURES

- Enhancements for plants and animals over an area of 11 ha in a line right-of-way near Bout-de-l'Île substation.
- Preservation of 6 ha of woodlands for 40 years in the vicinity of Bout-de-l'Île substation, intended, among other things, to protect Delay's brown snake, a species likely to be designated threatened or vulnerable.
- Landscaping at Lachenaie and Bélanger substations.
- Installation of a white roof to curb the heat island effect at Bélanger and Bout-de-l'Île substations.

Integration of wind output from independent power producers – second tender call

Status:

- 315-kV line from Le Plateau wind farm: in operation
- 315-kV line from Rivière-du-Moulin wind farm: under study
- 315-kV line from Seigneurie-de-Beaupré wind farms
- 315-kV line from Lac-Alfred wind farm: in operation
- 120-kV line from Saint-Robert-Bellarmin wind farm: in operation
- 120-kV line from L'Érable wind farm: in operation
- 120-kV line from Massif-du-Sud wind farm: in operation
- 230-kV line from New Richmond wind farm: in operation
- 120-kV line from Montérégie wind farm: in operation
- 120-kV line from Vents du Kempt wind farm: under study
- 230-kV line from Les Moulins wind farm: in operation

Cost: $216 million

Regions: Bas-Saint-Laurent, Capitale-Nationale, Centre-du-Québec, Chaudière-Appalaches, Estrie, Gaspésie–Îles-de-la-Madeleine, Montérégie

Construction: 2011–2014

Completed projects include the connection of Massif-du-Sud and Saint-Robert-Bellarmin wind farms. For the 25-km line built for Massif-du-Sud wind farm, we took local concerns into account to optimize nearly 50% of its route and avoid farmland and cottage areas; part of the line was erected next to an existing right-of-way to limit environmental impacts.

Connecting Saint-Robert-Bellarmin wind farm called for construction of a 37-km line; more than 50% of that line's route lies on private property.

Work in progress to connect Massif-du-Sud wind farm to the Hydro-Québec transmission grid.

MITIGATION MEASURES

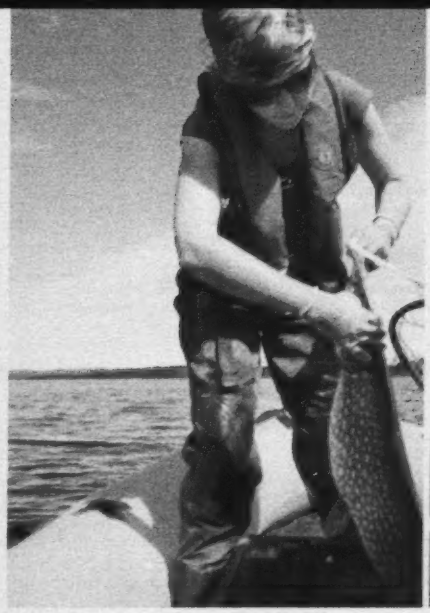
- Standard mitigation measures were implemented, including those specified in the agreement between Hydro-Québec and the Union des producteurs agricoles (UPA) on the siting of transmission lines on farms and in woodlands. For example, temporary bridges rather than culverts were used to cross streams in order to limit sediment inflow.
- Optimization of line routes for the Massif-du-Sud and Saint-Robert-Bellarmin projects improved local acceptability and limited environmental impacts.

2012 HIGHLIGHTS

- Seven wind farms were connected to the grid: Lac-Alfred, New Richmond, Massif-du-Sud, Les Moulins, Saint-Robert-Bellarmin, L'Érable and Montérégie.

EXCLUSIVE WEB CONTENT

- Power transmission – integration of wind farms
- Electricity purchases – Québec market: farms and generating stations covered by supply contracts



◀ Monitoring fish mercury levels in Lac aux Cèdres, near Sainte-Marguerite-3 generating station.

▼ Northern harrier, a species inventoried as part of the environmental follow-up.

Examples of follow-ups in operation phase

Environmental follow-ups measure the real impact of projects and evaluate the effectiveness of the mitigation and compensation measures. The lessons learned are used to improve environmental assessment procedures. Some monitoring continues for as long as 20 years after a project starts operation.

Sainte-Marguerite-3 generating station

Status: fully commissioned in 2007

Region: Manicouagan

Installed capacity: 882 MW

Annual output: 2.6 TWh

Environmental follow-up: 2003–2014

MAIN CONCLUSIONS OF THE ENVIRONMENTAL FOLLOW-UP

Changes in fish communities

- Sainte-Marguerite 3 reservoir holds more fish than the ecosystem that existed before it was created. Longnose sucker is once again the dominant species in the reservoir, as it was when the baseline was established in 1996.

Fish mercury levels

- Fourth monitoring campaign: fish mercury levels in several of the areas monitored have declined significantly, but remain higher than in natural environments. New, less restrictive consumption recommendations will be passed on to the local population, in cooperation with the North Shore Health and Social Services Agency.

Chute-Allard and Rapides-des-Cœurs developments

Status: in operation since 2008 and 2009

Region: Mauricie

Installed capacity: 138 MW

Annual output: 0.9 TWh

Environmental follow-up: 2009–2021

MAIN CONCLUSIONS OF THE ENVIRONMENTAL FOLLOW-UP

Vegetation

- On the Wemotaci plain, plant cover of excavated material disposal sites has increased from 50% to 64%.
- In the channels, aquatic vegetation has increased from 33% to 59%.
- In one area, 50% of excavated material disposal sites have now been colonized and aquatic vegetation covers 2% of the channels.

Birds

- Two raptor species have been observed: northern harrier and merlin.
- Altogether, 63 breeding pairs of ducks were counted, an increase from the baseline of 49 pairs. The breeding pair density was up from the baseline, while the brood density was down from the baseline.
- A total of 42 songbird species were heard, compared to 43 when the baseline was established. The dominant species are common yellowthroat, swamp sparrow, white-throated sparrow and Philadelphia vireo.

Fish

- Eight pike spawning grounds were recorded in the channels; their use and productivity have both risen relative to the findings of the first year of monitoring.

Mammals

- Muskrat use of the area has not really changed since 2009. As regards beaver, 31 signs of activity were recorded in the follow-up, whereas no activity was observed for the Wemotaci plain baseline.

ACCEPTABILITY AND SPINOFFS FROM PROJECTS AND OPERATIONS

Gill Halle, Supervisor, and Stéphane Lapointe, Advisor – Environment, discuss upcoming work on a line right-of-way. The objective: to develop compensation measures.

Over the years, society's values regarding landscape and heritage protection have changed; so has Hydro-Québec's collaborative approach, which involves communities in project planning.

Consultation is helpful in determining the project variant that will have the least social, environmental, technological and economic impact. As a result, communities are more receptive to the projects.

Since the late 1990s, projects have been required to meet three essential conditions: they must be profitable, environmentally acceptable and favorably received by the host community. Before beginning a generation or transmission project, Hydro-Québec deploys a public participation program so that the host community's concerns and expectations can be taken into consideration.

One major environmental concern is biodiversity protection. Hydro-Québec is sensitive to this issue and gives it special attention in its projects and operations.

Biodiversity Protection

Many plant and animal species inhabit or use the areas near our facilities and line rights-of-way. Many of them are protected by provincial regulations:

- ***78 plant species have been designated at-risk***
- ***38 wildlife species have at-risk status***

PROTECTING PLANTS AND ANIMALS AND THEIR DIVERSITY

Hydro-Québec expends considerable effort to protect wildlife, plants and their habitats. The company has been conducting environmental follow-ups for over 40 years and the studies show that none of the plant or animal species studied have been extirpated.

Hydro-Québec also collaborates on creating Québec's network of protected areas and has made concessions on projects in order to protect natural environments. For example, in 2012, the company renounced hydroelectric development of the Rivière Nastapoka for the Québec government's new Parc national Tursujuq.

2012 HIGHLIGHTS

- Hydro-Québec participated in the work of seven Faune Québec restoration crews to protect 15 endangered species, including the wood turtle and forest-dwelling caribou.
- We were also involved in building 23 map turtle rest areas along the Rivière des Outaouais using cedar poles removed from Hydro-Québec's grid. This species has been designated vulnerable in Québec.
- About 34,700 eels migrated through the fish passes at Beauharnois generating station.
- A guide was produced to prevent accidental destruction of migratory birds' nests during construction and maintenance operations.

PUBLIC PARTICIPATION IN A MAJOR PROJECT

	PLANNING	DRAFT DESIGN AND PERMITTING	CONSTRUCTION	OPERATION
GENERATION	▪ Preliminary discussions with regional county municipalities and Aboriginal communities with a view to signing agreements ▪ Identification of basic expectations and issues ▪ Duration: 1 to 2 years	▪ Information and discussion panels ▪ Continuous communications (open house events, information meetings, media relations, etc.) ▪ Public consultation by government authorities ▪ Duration: 2 to 5 years	▪ Regional economic spinoffs committees ▪ Environmental and agreement monitoring committees ▪ Public information on work progress (bulletins, press releases, etc.) ▪ Duration: varies, 2 to 12 years	▪ Environmental and agreement monitoring committees ▪ Follow-up duration: varies, exceeds 20 years for the Romaine project
TRANSMISSION	▪ Evaluation of the relevance of consulting host communities when local environmental issues are present ▪ Duration: 1 to 2 years	▪ Three communication phases implemented by project teams: □ general information □ public consultation □ information on solution selected ▪ Various types of communication (open house events, information meetings, media relations, etc.) ▪ Public consultation by government authorities ▪ Duration: 2 to 5 years	▪ Public information on project progress (bulletins, press releases, info-project line, etc.) ▪ Duration: 1 to 5 years	▪ As needed, written information on results of environmental follow-ups ▪ Follow-up duration: varies, 7 years for the Des Cantons–Lévis–Appalaches project

PUBLIC PARTICIPATION

Public participation is intended to ensure that facilities are integrated with their environment and that stakeholders' concerns and opinions are taken into consideration when decisions are made. Although stakeholders are involved in the project stages that concern them, this process must remain aligned with the company's objectives and resources. Consultations with stakeholders are helpful in determining the project variant that will have the least social, environmental, technological and economic impact. The discussions also mean that project development can respond better to host community needs and expectations. In addition to the project-related activities described on pages 21 to 25, many activities took place during the year.

2012 HIGHLIGHTS

▪ In the ongoing review of the Hydro-Québec – UPA agreement on the siting of transmission lines on farms and in woodlands, the parties agreed to incorporate new items and confirmed financial compensation rates for property owners.

RELATIONS WITH ABORIGINAL COMMUNITIES

Québec's 11 Aboriginal nations, in 55 communities, account for about 1% of the province's population. Many of these communities are in areas with high hydroelectric potential. Hydro-Québec seeks to develop mutually beneficial partnerships with these communities. We call upon their knowledge of the natural environment when conducting environmental inventories and implementing mitigation measures.

2012 HIGHLIGHTS

▪ Seven new permanent Cree employees were hired, bringing the total number of Crees working for Hydro-Québec in Baie-James to 54.

▪ 192 employees participated in an in-house training program about Aboriginal nations and communities, and Hydro-Québec's business relations with them.

EXAMPLES OF PUBLIC PARTICIPATION – 2012

PROJECT	STATUS	DESCRIPTION	ACTIVITIES
735-kV Chamouchouane–Bout-de-l'Île line (Saguenay–Lac-Saint-Jean, Mauricie, Lanaudière and Montréal)	Under study	Construction of a new 400-km 735-kV transmission line from Chamouchouane substation in Saguenay–Lac-Saint-Jean to Bout-de-l'Île substation in Montréal	Over 45 meetings, including 15 open-house events, were organized for some 4,500 property owners, vacation leaseholders and citizens. Hydro-Québec presented the project and discussed with the public how to optimize the line routes.
120-kV tie line for Vents du Kempt wind farm (Bas-Saint-Laurent)	Under study	Construction of a new 120-kV line connecting the substation at Vents du Kempt wind farm (100 MW) to the Hydro-Québec grid near Causapscal substation	Meetings were held to gather public concerns about two line-route variants. The participants requested avoidance of the rare good farmland in the region and a specific stretch of a salmon river. The line route selected takes these concerns into account.
120/25-kV Neubois substation and tap line	In service	Construction of a new 120/25-kV substation connected to the grid by a 20-km 120-kV line	Neubois substation, a project favorably received by the community, was inaugurated in the presence of elected officials, municipal managers and the Lotbinière local development centre in December.

Nathalie Roussel, Manager – Community Relations – Laurentides (seated), discusses the Chamouchouane–Bout-de-l'Île line with the project team: Carole Ménard, Advisor – Strategic Management, Christiane Rompré, Project Manager – Environment, and Mathieu Boiullo, Project Manager.

4% of GDP

In Québec, the value added in 2012 by the power generation, transmission and distribution industry was estimated to be about $12 billion[1] of the gross domestic product (GDP) of approximately $325 billion. Since Hydro-Québec accounts for over 90% of this industry, its stake in the Québec economy is about 4% of the GDP.

1. Estimated value, in current dollars. Excludes Hydro-Québec's construction activities, R&D and subsidiaries' operations.

Sources: Hydro-Québec and Institut de la statistique du Québec.

SPINOFFS FROM PROJECTS AND OPERATIONS

Hydro-Québec's presence throughout the province and the scale of its operations, infrastructure projects and procurement of goods and services make it a major contributor to the Québec economy.

In addition to paying dividends to its shareholder, the Québec government, Hydro-Québec supports thousands of jobs with its expenditures and investments.

Hydro-Québec employs various mechanisms to maximize the regional economic spinoffs of its projects. For acquisitions valued at less than $1 million (excluding goods and services related to its core mission), eligibility for bidding may be limited to suppliers with a presence in the administrative region where the goods and services are required. However, the pool of potential suppliers must be sufficient in number to support healthy competition. Regional economic spinoffs committees are also created to enable local economic associations to be informed about tender calls and project spinoffs.

HYDRO-QUÉBEC'S CONTRIBUTION TO THE QUÉBEC ECONOMY

	2009	2010	2011	**2012**
Dividend ($M)	2,168	1,886	1,958	645
Public utilities tax ($M)	188	262	244	252
Water-power royalties ($M)	567	557	593	617
Municipal and school taxes ($M)	34	34	35	36
Procurement from Québec-based companies (%)	87	91	93	94
Direct jobs sustained by procurement, including purchases outside Québec (person-years)[a]	12,333	13,750	12,800	12,900
Community investments ($M)[b]	39	36	30	29

a) Excluding procurement by Société d'énergie de la Baie James.

b) Community investments include all the items listed on page 40.

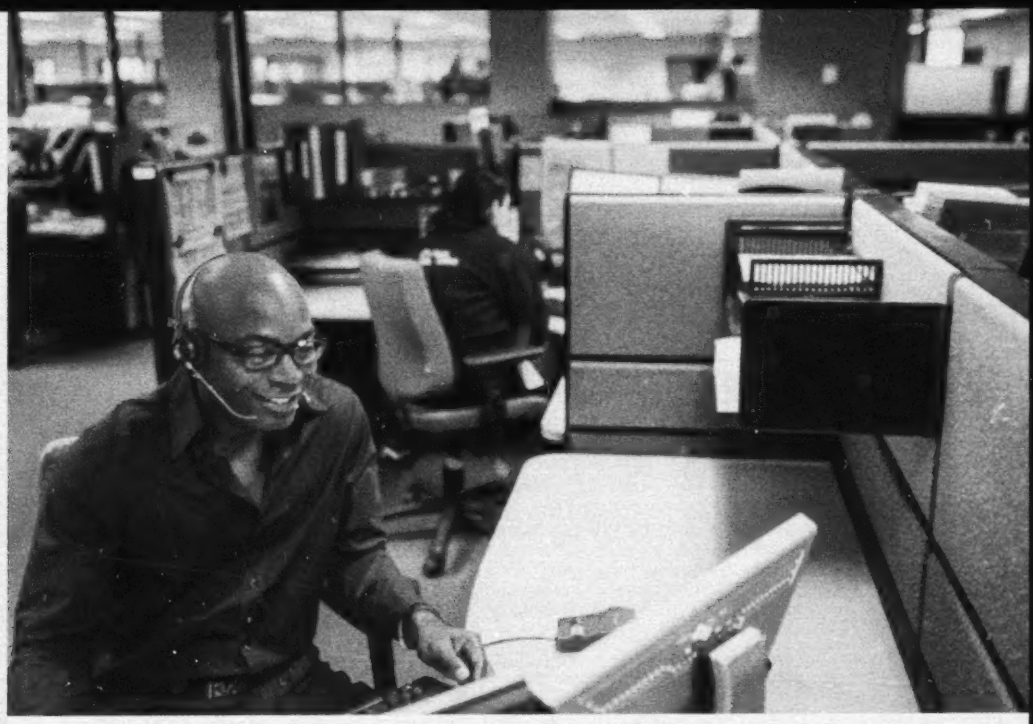
2012 HIGHLIGHTS

- The Côte-Nord economic spinoffs committee held 13 meetings; the members include Innu and Mingan communities that have signed agreements. Two meetings were held with Côte-Nord businesspeople, as in previous years.
- Procurement of goods and services inside and outside Québec totaled $3,011 million ($2,913 million in 2011):
  - purchase of goods: $1,088 million
  - rentals and leasing: $26 million
  - specialized services and other work: $1,471 million
  - professional services: $426 million
- Procurement of goods and services from Québec businesses was $2,834 million (94% of the total).

EXCLUSIVE WEB CONTENT

- Construction projects
- Eastmain-1-A/Sarcelle/Rupert project
- Romaine Complex (in French only)

RESPONSIBILITY FOR ELECTRICITY SERVICE



Representative Donald Maxis working in the Esplanade customer relations centre in Montréal.

Asset sustainment is imperative for the long-term security and reliability of the electricity supply.

In 2012, we invested $560 million in refurbishing or optimizing major components of the generating fleet. Additionally, we devoted $735 million to our transmission grid—the most extensive in North America—as well as $394 million to ensure the long-term operability of our distribution system. These investments have a twofold objective: ensure compliance with North American standards and regulatory requirements, and provide our customers with top-quality service.

Electricity-service reliability is measured by the system average interruption duration index (SAIDI), which is the average duration, in minutes, of service interruptions per customer. Service interruptions can be caused by maintenance operations or may be outages related to weather conditions, vegetation or defective equipment.

2012 HIGHLIGHTS

- As part of the distribution automation program, 489 remote-controlled switches and breakers were installed (3,521 units since 2006). When this program wraps up in 2013, some 3,600 devices will have been installed at strategic points on the system and will reduce outage duration.
- In cooperation with the Université du Québec à Rimouski, we studied the vulnerability of Îles de la Madeleine power facilities to erosion and submersion. Result: equipment that is at risk was identified and projects have been planned to protect it.

NEXT-GENERATION METERS

To improve service quality, Hydro-Québec is rolling out an advanced metering infrastructure. In October 2012, the Régie de l'énergie approved the installation of 1.7 million next-generation meters and associated technologies in greater Montréal by 2014. By 2018, 3.75 million meters will be replaced throughout the province. The meters removed will be dismantled and the various materials separated and recycled.

Recognition

Hydro-Québec received two Emergency Response Awards from the Edison Electric Institute for its outstanding contribution to power restoration in several U.S. states after Hurricane Irene (August 2011) and Hurricane Sandy (October 2012).

The new metering infrastructure will provide a number of advantages: billing based on actual readings instead of estimates, remote management, new services and eventual elimination of the 7 million kilometres traveled each year to read meters, which represents nearly 2,000 tonnes of avoided greenhouse gas emissions per year.

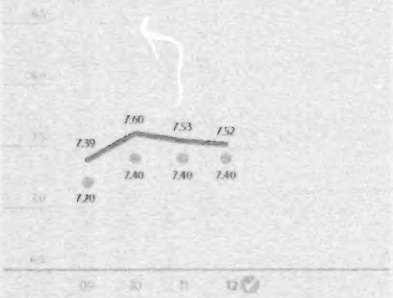
SYSTEM AVERAGE INTERRUPTION DURATION INDEX
(MINUTES OF INTERRUPTION PER CUSTOMER)

2009	2010	2011	**2012**
159	139	163	**150**

SAIDI is used to measure transmission and distribution service reliability. Only the distribution system SAIDI is normalized to exclude interruptions that are mainly caused by extreme weather conditions.

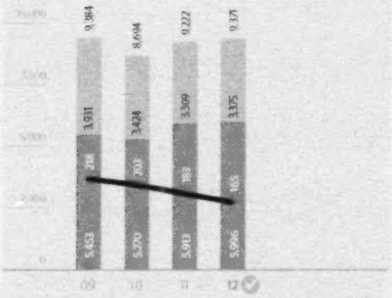
The system average interruption duration index is an international standard of the Institute of Electrical and Electronics Engineers (IEEE).

OVERALL CUSTOMER SATISFACTION INDEX (scale of 10)



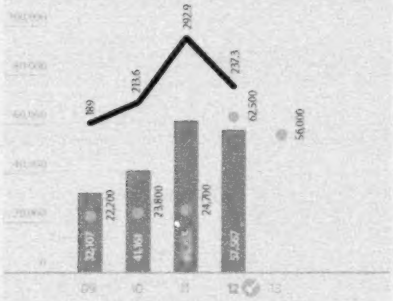
Overall satisfaction index (excluding large-power customers)
Target

CUSTOMER COMPLAINTS AND CLAIMS (number)



Complaints
Claims
Appeals to the Régie de l'énergie

PORTFOLIO OF COLLECTION SOLUTIONS: ARRANGEMENTS – LOW-INCOME HOUSEHOLDS[a]



Number
Gross amount ($ million)
Target

The reduction in the number of payment arrangements in 2012 is due to a transfer between two types of arrangements and a general decrease in the number of arrangements.

a) Includes long-term arrangements.

2012 HIGHLIGHTS

- A list of environmental criteria was created to locate and determine what mitigation measures to apply when installing data collectors. These devices collect information from routers that is sent to the telecontrol centre.

CUSTOMER SATISFACTION

Since 1992, the company has surveyed its different customer categories to determine their priority expectations and their degree of satisfaction. In compliance with the *Act respecting the Régie de l'énergie*, a complaints mechanism is in place to enable customers who feel they have been wronged to express their dissatisfaction.

2012 HIGHLIGHTS

- A new procedure was introduced to survey large-power customers' satisfaction and harmonize the approach with the one used for other customer categories. The result: a rating of 8.42 out of 10. Electricity supply and rates remain the major concerns and are strategic issues for these customers.
- The plan to install new meters raised concerns among customers and generated 284 complaints (5% of complaints). No appeals were filed to the Régie l'énergie in these cases.
- The number of complaints about hook-up lead times increased (8% of complaints in 2012, compared to 2% in 2011).
- The number of complaints related to collections decreased (18% of complaints in 2012, compared to 23% in 2011).
- The number of claims related to outages decreased.

FAIRNESS FOR CUSTOMERS

Every year, thousands of low-income customers who have difficulty paying their bills benefit from special long-term payment arrangements. To improve collection services for these customers, Hydro-Québec has set up various communication channels with consumer associations. In 2012, a consumer working group met five times.

In addition, a working group of community organizations experiments with proposed solutions related to the products and services offered to low-income households. Collection practices and energy efficiency are among the possibilities considered. This working group met twice in 2012.

Québec is home to dozens of cultural communities and customers frequently do not have a good command of either French or English. To facilitate the collections process with these customers, Hydro-Québec deals with four community organizations that provide translation services in 19 languages.

2012 HIGHLIGHTS

- 57,567 long-term payment arrangements were reached with low-income customers, amounting to $237.3 million. Some of them provide assistance with payment of arrears and, if necessary, of current electricity use. In 2012, 14,785 such arrangements were signed, for a gross amount of $13.8 million.
- For residential customers, Hydro-Québec entered into payment arrangements to facilitate settlement of 183,888 cases totaling $399.2 million in arrears.
- The Refrigerator Replacement for Low-Income Households program was rolled out to two more regions: Abitibi-Témiscamingue and Saguenay–Lac-Saint-Jean.
- Over a hundred employees took part in a workshop on doing business in a context of poverty.

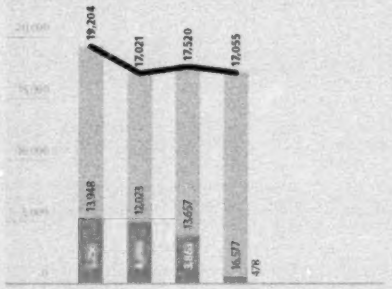
MANAGING THE IMPACTS OF SERVICE

The ISO 14001–certified environmental management systems implemented in the late 1990s have improved the company's environmental performance in many ways, including use and recovery of residual materials.

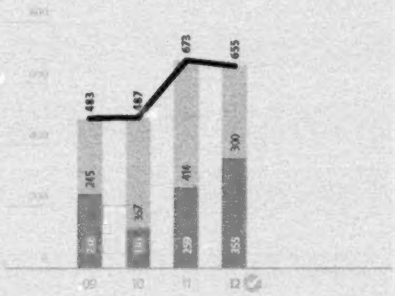
2012 HIGHLIGHTS

- One million litres of drinking water were saved through our program for refurbishing administrative buildings. This program has generated recurring annual savings totaling 248 million litres since 2007.
- Gold-level Clé verte (Green Wrench) environmental certification was awarded to four new vehicle repair shops (Gatineau, La Grande-4, Lebourgneuf and Trois-Rivières). The Joliette garage also received the Gold level upon renewal of its certification.

VEGETATION CONTROL ALONG TRANSMISSION LINE RIGHTS-OF-WAY[a] (ha)



VEGETATION CONTROL ON DIKES AND DAMS[b] (ha)



Area treated selectively with herbicides

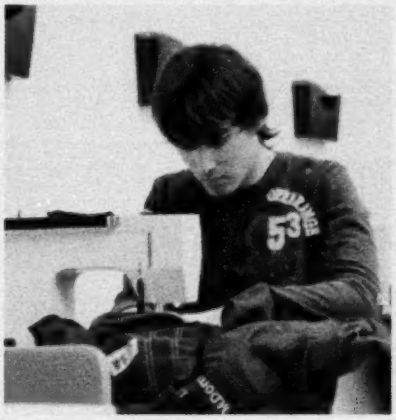
Area treated mechanically

Total area treated

a) The total area of transmission line rights-of-way to be maintained is 169,996 ha, down 2% from 2011. In 2012, conditions in rights-of-way permitted a substantial reduction in herbicide use.

b) Use of herbicides and mechanical treatment vary depending on the five-year plan cycle. The proportion of herbicides used therefore changes annually.

Business and recycling training centres (CFER) recycle used Hydro-Québec work clothes and give young people an opportunity to receive job training while serving the cause of sustainability.



VEGETATION CONTROL

To ensure that service is reliable and its facilities are safe, Hydro-Québec must control the vegetation in its power line rights-of-way. For the distribution system, various committees ensure that the necessary tools and mechanisms are available to deal with environmental considerations. For the transmission system and generating facilities, the company's procedure promotes the use of the right treatment in the right place at the right time. Note that in 2012 we began testing two new technologies that should improve our accuracy in detecting vegetation that may be hazardous for transmission lines.

EXCLUSIVE WEB CONTENT

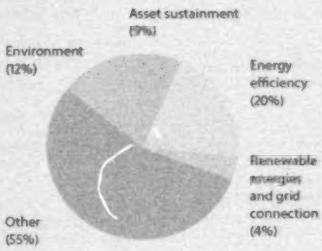
- Vegetation, safety and power lines
- Next-generation meters
- Declaration of ISO 14001 environmental principles
- Contaminated sites and spills
- Insulating oil

PROCUREMENT, RECOVERY, REUSE AND RECYCLING OF RESIDUAL MATERIALS – SOME STATISTICS

	2012		
	PROCUREMENT	RECOVERY	NOTES
Power-line hardware (tonnes)	not available	454	Most power-line hardware is given to a business and recycling training centre (CFER). Parts in good condition are re-milled and reused. Reuse rate in 2012: 100%. Damaged parts are recycled.
Printer cartridges and accessories (units)	18,053	22,580	Purchased recycled cartridges accounted for 26% (12% in 2011) owing to availability of a wider range of recycled cartridges and better user information.
Computer equipment			Computer and electronic equipment is collected by a company that employs people with functional difficulties. After the data is erased, equipment that still has value is sold or given to charities. Obsolete or damaged equipment is dismantled and recycled.
■ Purchased (units)[a]	8,278	not applicable	
■ Computers (units)	not applicable	4,730	
Wooden pallets (units)	not available	23,942	Close to 40% of recovered pallets are given to a company that reconditions and reuses them. Pallets in poor condition are recycled for use in animal bedding, acoustic tiles and other products.
Paper and paperboard (tonnes)	365	1,160	Purchases were for paper only. They have decreased by 9% compared to 2011. Recovery: 748 t of paperboard and 412 t of paper.
Porcelain (transmission-line insulators) (tonnes)	not available	125	100% of insulators are recycled.
Clothing (kg)	not available	8,438	Collection is handled by CFERs in Alma, Drummondville and Boucherville.

a) Computer equipment includes desktop, laptop and workstation computers and monitors.

BREAKDOWN OF IREQ INNOVATION EFFORTS RELATED TO SUSTAINABILITY – 2012



Note: Excludes investments in energy storage and conversion.

Metrology technician Éric Perreault measures the voltage of the battery for the TM4 MOTIVE motor system used for V2G and V2H tests.

EXAMPLES OF SUSTAINABILITY-RELATED INNOVATION PROJECTS – 2012

CATEGORY	ACHIEVEMENT OR WORK IN PROGRESS	INVESTMENT ($'000)[a]
Environment	▪ Improvement of hydrological modeling tools to ensure compliance with the numerous environmental requirements related to river flows at different times of year ▪ Use of ultrasound guidance technology to help adult American shad return to the ocean ▪ Development of technology for treating runoff from preserved-wood pole storage yards ▪ Optimization of a reduced-impact method for preserving wood poles and recycling them at the end of their service life	7,842
Asset sustainment	▪ Improvement of facility, structure and equipment design, and management to extend service life or optimize decisions regarding refurbishment or replacement. Projects also improve understanding and simulate aging mechanisms to improve diagnostics and prediction of remaining service life.	5,702
Energy efficiency	▪ Reduction of energy losses on the transmission system ▪ Improvement of system capacity, reliability and security ▪ Maximization of energy efficiency gains (CATVAP) ▪ Generator uprating and turbine performance improvement in some generating stations (AUPALE – increase in existing generators' capacity and SAMH – numerical simulation of turbine behavior) ▪ Development and distribution of energy optimization tools for buildings (SIMEB) ▪ Assessment of the potential for reducing peak consumption by managing various residential loads ▪ Recycling of industrial waste heat ▪ Energy efficiency improvements for pulp and paper manufacturing processes ▪ Development of high-frequency technology for drying lumber	13,107
Renewable energies and grid connection	▪ See Energy Portfolio section, page 19.	2,638

a) Excludes investments in energy storage and conversion.

Development of ground transportation electrification

***With the** Electric Vehicle 2011–2020 Action Plan**, the Québec government's target is to have electric vehicles (plug-in hybrids and all-electric vehicles) account for 25% of new light passenger vehicle sales by 2020: this means 118,000 vehicles, or 5% of the light vehicles in Québec.*

TRANSPORTATION ELECTRIFICATION

Replacement in Québec of one million gas-powered cars with electric vehicles could reduce greenhouse gas emissions by 3.4 million tonnes per year and contribute significantly to the fight against climate change. According to a 2012 survey conducted for the Canadian Automobile Association, Quebecers are the most likely people in Canada to consider purchasing an electric vehicle.

With clean, renewable energy, a reliable power system and state-of-the-art expertise, Hydro-Québec has the necessary assets to contribute to the development of electric mobility. The company's action plan in this area focuses mainly on the following:

- Development and marketing of advanced technologies
- Test-driving of electric vehicles and experimenting with integration into the power grid
- Planning of support infrastructure for vehicle charging

2012 HIGHLIGHTS

- An initial series of 240-V public charging stations, located in the commercial parking lots of founding partners of the Electric Circuit, was inaugurated. By the end of the year, the Electric Circuit had nearly 150 charging stations in service and 20 new partners.
- Hydro-Québec began work with Plug'n Drive Ontario, a non-profit organization promoting electric mobility, to deploy a Québec/Ontario public charging network.
- In October, specialists from Hydro-Québec, Green Mountain Power and the Vermont government formed a task force on public charging infrastructure to support the planned "green corridor" between Montréal and Burlington.
- Canada's largest all-electric-vehicle road trials continued: 30 Mitsubishi i-MiEV cars were tested in cooperation with the city of Boucherville and local businesses. Since summer 2012, participants have been testing a fast-charge station (400+ volts) in a St-Hubert Restaurant parking lot.
- Hydro-Québec was involved in four more feasibility studies with the proponents of the following electrification projects: Montréal trolleybuses – Société de transport de Montréal; Laval aerial tramway – Société de transport de Laval (STL); tramways in Québec and Lévis – Réseau de transport de la Capitale and Société de transport de Lévis; and electric taxis – Comité provincial de concertation et de développement de l'industrie du taxi.
- A test program was launched on vehicle-to-grid (V2G) and vehicle-to-home (V2H) systems that implement a number of advanced Québec technologies, a key factor for Hydro-Québec. In addition to TM4, IREQ's partners in the project include B3CG Interconnect (Saint-Eustache), the Centre National du Transport Avancé (Saint-Jérôme) and Brioconcept (Laval).

CONTRIBUTIONS, COMMITMENTS, RESEARCH CHAIR FUNDING AND RESEARCH CONTRACTS ($'000)

EDUCATIONAL INSTITUTION OR RESEARCH GROUP	2009	2010	2011	2012
Université de Montréal	213.2	244.7	323.1	315.8
HEC Montréal	45.0	31.0	0.0	25.0
Polytechnique Montréal	817.2	454.8	632.1	1,650.4
Université du Québec en Abitibi-Témiscamingue	72.4	51.4	51.0	65.0
Université du Québec à Chicoutimi	225.4	325.4	240.7	80.0
Université du Québec à Montréal	1,643.4	1,521.6	996.1	1,018.9
Université du Québec en Outaouais	184.4	125.0	0.0	0.0
Université du Québec à Rimouski	50.0	35.0	100.0	240.0
Université du Québec à Trois-Rivières	300.0	300.0	222.0	277.5
École de technologie supérieure	456.6	440.0	379.3	496.0
Institut national de recherche scientifique	196.5	38.5	5.0	183.4
Fondation universitaire de l'Université du Québec	25.0	0.0	0.0	0.0
McGill University	988.0	1,200.0	1,210.0	1,076.5
Concordia University	527.0	608.0	600.0	481.0
Université Laval	1,149.6	1,300.6	844.1	1,265.3
Université de Sherbrooke	556.7	526.9	584.5	1,259.9
Ouranos, Cirano and Institute of Electrical Power Engine	1,690.8	1,706.8	1,839.7	1,898.4
Institutions outside Québec	453.8	895.8	490.1	556.5
Total	**9,599.5**	**9,805.4**	**8,517.7**	**10,889.6**

2012 figures include $3.5 million recorded as donations and sponsorships.

EXCLUSIVE WEB CONTENT

- Transportation electrification
- Technological innovation
- Support for university chairs

HEALTH AND SAFETY

On the Bout-de-l'île substation jobsite, Stéphane Briand, the contractor's Advisor – Health, Safety and Environment, in discussions with Hydro-Québec Équipement et services partagés safety advisors Jacques Simard and Johanne Doucet.

Health and safety are priorities for Hydro-Québec. Whether through research, training and monitoring or field operations, the company makes its expertise available to workers and the public.

ELECTRICAL AND MAGNETIC FIELDS

Live wires and electrical equipment generate electric and magnetic fields (EMFs) that are usually low-intensity and imperceptible. Their potential effects on the human body have been studied extensively for 40 years.

Although the research has produced no evidence that EMFs have an impact on human health, Hydro-Québec intends to continue supporting this research and will keep a close watch on changes in knowledge.

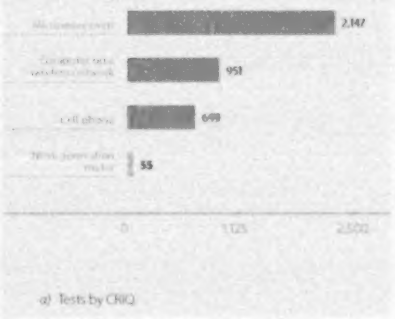
RADIO FREQUENCIES

The health impacts of radio frequencies emitted by next-generation meters have been analyzed at length by the Régie de l'énergie. The intensity of these radio frequencies is 20,000 to 300,000 times lower than current Health Canada limits, and is much lower than the average intensity emitted by cell phones. The opinion of public health authorities and the evidence heard by the Régie indicate that the emissions from next-generation meters do not pose any health hazard.

NOISE

Hydro-Québec takes steps to prevent or mitigate noise from facilities near sensitive environments, such as residential neighborhoods. To prevent noise pollution, the company installs quieter equipment. When reduction at source is not sufficient, mitigation measures like sound barriers are used.

COMPARISON OF RADIOFREQUENCY EMISSIONS 1 M AWAY[a] ($\mu W/m^2$)



a) Tests by CRIQ

2012 HIGHLIGHTS

- The MAPLE sound-level meter was developed to monitor such long-term trends as the influence of weather conditions on substation noise propagation.
- A system that measures acoustic absorption factors will help improve the design of sound barriers.
- Noise reduction measures at Lévis substation, located in an urban setting, included replacing reactors and installing sound barriers.

MERCURY

Reservoir impoundment alters the mercury in flooded vegetation and soil, and causes it to circulate in the aquatic environment. The result is an initial increase in fish mercury levels, which then return to baseline levels. The process can take 10 to 35 years, depending on the fish species and the type of reservoir.

La Grande Complex follow-up:

- For non-piscivorous fish, mercury levels reach their maximum after 5 to 10 years. They return to normal 10 to 20 years after impoundment.
- For most piscivorous species, mercury levels reach their maximum after 10 to 15 years. They return to normal 20 to 30 years after impoundment.

According to research, levels reached are not harmful to birds and mammals that eat fish. Fish consumption guides are updated regularly in cooperation with local public health authorities so that fishermen can continue to eat fish safely until natural conditions resume.

FACILITY SECURITY AND PUBLIC SAFETY

Hydro-Québec has introduced mechanisms to assess its performance and improve procedures relating to facility security and public safety. Facilities are closely monitored and public awareness campaigns inform people about safe behavior and the hazards of unsafe use of electricity.

2012 HIGHLIGHTS

- 400 compliance audits at Hydro-Québec facilities included a public safety component. Result: a compliance rate of 99.6%.
- As part of a security awareness campaign, the toll-free number used to report any situation that poses a risk to company personnel or facility security received 2,453 calls. More than 50% of the calls reported thefts.

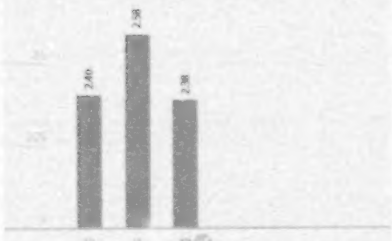
EMPLOYEE HEALTH AND SAFETY

The company's occupational health and safety efforts are supported by an ongoing search for more effective accident prevention measures.

2012 HIGHLIGHTS

- All the units concerned committed to completing rollout of the occupational health and safety management system by 2015.
- Occupational health and safety training: 16,923 registrations.
- Number of participants in health awareness and promotion activities: 3,760.
- Three meetings were attended by nearly 100 members of joint occupational health and safety committees and over 300 of the participants on these committees were consulted.
- A tool was introduced to systematically document risks, requirements and constraints related to existing jobs in the company.

WORK-RELATED ACCIDENT FREQUENCY[a]



The frequency for [illegible] member companies in 2011 was 2.02.

a) Per 200,000 hours worked.

HEALTH CARE ON REMOTE JOBSITES

As prime contractor, Hydro-Québec provides front-line health care for workers on remote jobsites. Nursing staff is available, as well as telephone medical assistance at any time of day or night.

2012 HIGHLIGHTS

- On nine jobsites, where there are an average of 2,090 workers each month, about 30 nurses in nine clinics and five mobile units conducted 9,130 consultations. In 15% of the cases, telephone assistance from an on-duty physician was required and in 25% of the cases, evacuation was needed to obtain more specialized care.

ELECTRICAL ACCIDENTS – 2012

	EVENTS	DEATHS
Public – Hydro-Québec facilities	8	0
Public – use of electricity	0	0
Skilled workers – Hydro-Québec facilities	9	5
Skilled workers – use of electricity	2	0
Hydro-Québec employees	113	0
Total	**132**	**5**

Public. Tree trimming, pruning and felling were involved in 38% of the accidents. Other causes varied: contact with a live wire on the ground, contact with a medium-voltage line while a cable company employee was moving a cable, fall into an underground chamber, a pole failure that caused a transformer to fall to the ground, electrical current in an aluminum sign pole.

Skilled workers. Three deaths resulted from ladder contact with the distribution system. The other two deaths involved tree pruning and contact with a medium-voltage conductor while the worker was in a bucket lift. The main causes of the other accidents were poor work methods, poor lift handling and the presence of vegetation.

EXCLUSIVE WEB CONTENT

- *The Power System and Health – Electric and Magnetic Fields* brochure
- Next-generation meters
- Power safety around Hydro-Québec facilities

HUMAN RESOURCES

Apprentice lineworkers Jessy L. Therrien, Keven Morin and Vincent Lefebvre, with line crew chiefs Bertrand Thibault and Claude Legault, and apprentice lineworker Maxime Plouffe. The crew members are being assigned tasks for the extension of an overhe ad line in a new residential area in Saint-Lin–Laurentides.

As elsewhere in the Québec labor market, employment equity at Hydro-Québec has changed a great deal in the past 50 years. Today, women hold many kinds of jobs, including 22% of management positions.

WORKFORCE

In 2012–2013, the company anticipates a workforce reduction of about 2,000 employees, due to attrition and the application of efficiency measures. The total number of employees should be 20,500 by the end of 2013.

Eight collective agreements govern working conditions for Hydro-Québec employees, 84% of whom are unionized. These agreements will expire in December 2013 and 2014.

2012 HIGHLIGHTS

- The workforce was reduced by a total of 905 employees.
- 274 new hires belong to one or more groups targeted by the *Act respecting equal access to employment in public bodies*.
- An eighth action plan was developed for people with disabilities.
- The company participated in and contributed to the first grant award ceremony for entrepreneurs with disabilities during the Semaine québécoise des personnes handicapées.

TRAINING AND SUCCESSION

Over the past five years, 5,466 employees retired. The trend should stabilize at about 1,000 per year until 2014. For this reason, we have taken steps to preserve and renew essential expertise.

2012 HIGHLIGHTS

- 3.4% of the payroll was invested in employee training programs.
- Leadership succession: critical positions at all management levels have been identified along with candidate development strategies.
- As a founding partner of the Institute of Electrical Power Engineering (IEPE), Hydro-Québec awarded 15 academic scholarships and 38 traveling scholarships. Since the Institute was founded in 2001, the company has hired 170 of its graduates, including 8 in 2012.

Kevin Corrado, a civil engineering student at the École de technologie supérieure, is interning with Alain Bouchard, Quality Manager –Transmission Engineering with Hydro-Québec Équipement et services partagés.

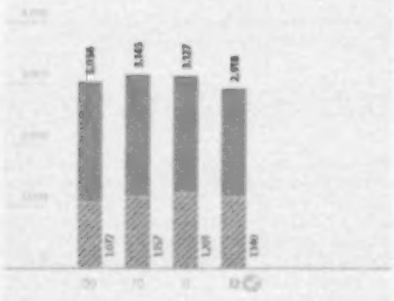
WORK ENVIRONMENT AND EMPLOYEE COMMITMENT

The company's efforts to provide a healthy work environment, free from discrimination, harassment and violence, are ongoing. We also inform employees of support resources available to them during difficult situations. For the fourth consecutive year, the new hires' satisfaction rate remained stable (8.3 in 2012).

2012 HIGHLIGHTS

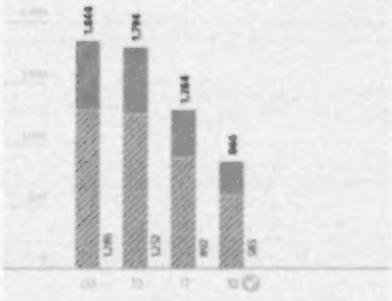
- The annual awareness campaign reinforced the 15-year-old zero-tolerance program against discrimination and harassment.
- Over 300 employees and managers participated in harassment prevention training offered by Hydro-Québec and bargaining units of the Canadian Union of Public Employees.
- 1,125 people attended a session on courtesy in the workplace.
- As part of the *Mérite du développement durable* contest, 17 employees were acknowledged for their actions, at work and in the community, to improve the environment, society and the economy.

ELIGIBILITY AND RETIREMENTS (number)



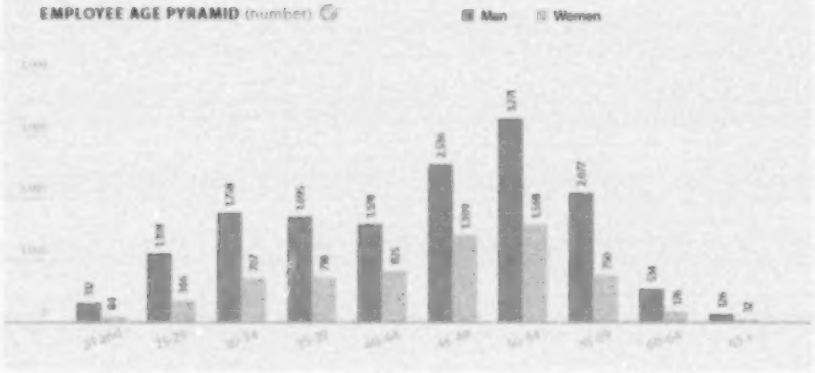
Permanent and temporary employees eligible for retirement
Retirements

NEW EMPLOYEES RECRUITED (number)



New employees
New employees under age 35

EMPLOYEE AGE PYRAMID (number)



HYDRO-QUÉBEC WORKFORCE

	2009	2010	2011	**2012**
Permanent workforce (number)	19,536	19,521	19,415	18,926
Temporary workforce (number)	3,554	3,571	3,086	2,670
Average age	45.4	45.2	45.2	45.4
Target group representation (%)				
Women	30.6	30.9	31.1	30.6
Aboriginals	0.8	0.8	0.8	0.9
Ethnic minorities	1.0	1.2	1.3	1.4
Visible minorities	2.2	2.6	3.0	3.1
People with disabilities	1.3	1.2	1.1	1.1

INTERNSHIPS

	2009	2010	2011	**2012**
Number of university internships (excluding IEPE)	257	403	303	268
Number of IEPE internships	14	37	22	18
Number of college internships	53	54	51	39
Total	**324**	**494**	**376**	**325**
Satisfaction rating by university students (scale of 10)	not available	8.5	8.5	8.6

According to a 2012 survey, 40% of university interns would like a job or another internship at Hydro-Québec. The satisfaction rate with overall internship content was 8.6 on a scale of 10. College interns' satisfaction rate was even higher.

INVESTING IN THE COMMUNITY

Every year, Hydro-Québec contributes to a science fair that encourages young people to discover the world of science and technology.

In order to improve the quality of life in the communities in which it operates, Hydro-Québec contributes to the vitality of all the province's regions through donations and sponsorships, its Integrated Enhancement Program, support for higher education and the Fondation pour l'environnement.

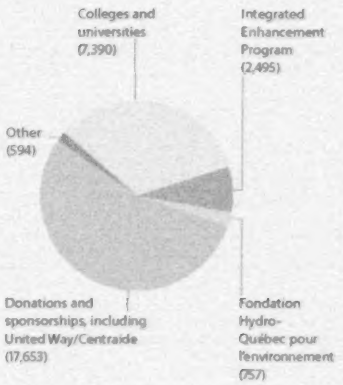
DONATIONS AND SPONSORSHIPS

Hydro-Québec devotes a portion of its average net income to community investments every year. In order to choose between the many requests it receives, the company applies its Sponsorship Policy as well as fair selection criteria that reflect its values. With sustainability in mind, it encourages projects that support its role as a corporate citizen, maintain or improve community relations, or promote its strategic objectives, programs and services.

2012 HIGHLIGHTS

- Donations and sponsorships amounted to $17.7 million: the $2.6 million for United Way/Centraide was added to the $2.6 million raised by employees and pensioners.
- A $225,000 sponsorship went to the Conseil de développement du loisir scientifique – Expo-sciences. Every year, the Conseil encourages over 15,000 young Quebecers under the age of 20 to become involved in science and technology by entering local, regional or provincial finals.
- A $150,000 sponsorship went to SPORTSQUÉBEC for the organization of the Québec Games in Shawinigan: the Games attracted some 4,000 young athletes, 1,500 coaches and chaperones, as well as thousands of relatives and spectators.

COMMUNITY INVESTMENTS – 2012 ($'000)


Colleges and universities (7,390)
Integrated Enhancement Program (2,495)
Other (594)
Donations and sponsorships, including United Way/Centraide (17,653)
Fondation Hydro-Québec pour l'environnement (757)

Community investments totaled $28.9 million. The Other category includes Youth Products ($354,000), the art collection ($200,000) and presentations at universities and colleges ($40,000). Contributions to universities are shown on page 35.

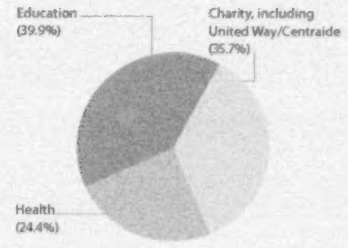
INTEGRATED ENHANCEMENT PROGRAM

To offset the residual impacts of its transmission projects, especially on the landscape, Hydro-Québec's Integrated Enhancement Program (IEP) pays the communities concerned 1% of the value authorized for the planned facilities. The funds are used for local initiatives that enhance the environment or improve municipal, community or recreational infrastructure, or for regional, tourist or Aboriginal community development. Since the IEP was created in 1985, Hydro-Québec has disbursed $113.4 million for a total of 1,142 initiatives.

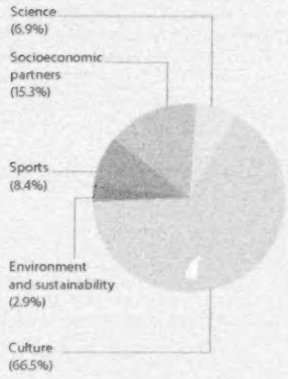
2012 HIGHLIGHTS

- Construction of Saint-Bruno-de-Montarville substation: we contributed $534,000 to the city of Saint-Bruno-de-Montarville to develop Marie-Victorin park. The funding will be used to build paths, install fixtures and create play spaces. This measure will enable families to enjoy an enhanced environment and good facilities. (Montérégie)
- Romaine hydroelectric complex connection to the transmission system: $194,974 was contributed to the regional county municipality of Sept-Rivières to develop access to the Ruisseau Cody waterfall, create spawning grounds in Lac Guillemette, build a community shelter at the Lac Walker campground and refurbish the outside of the community centre. (Côte-Nord)

BREAKDOWN OF DONATIONS



BREAKDOWN OF SPONSORSHIPS[a]



a) Excludes funding by the Fondation Hydro-Québec pour l'environnement.

FONDATION HYDRO-QUÉBEC POUR L'ENVIRONNEMENT

The activities of the Fondation Hydro-Québec pour l'environnement honor the company's commitments to long-term environmental protection. Since 2001, the Foundation has granted $11.1 million for 194 community projects.

2012 HIGHLIGHTS

- Funding of $81,700 was granted to the municipality of Wentworth-Nord to develop 6 km of interpretation trails around Lac Saint-François-Xavier. The project, worth over $171,000, will enhance 135 ha of ecologically valuable natural landscape. Interpretation panels along the trails will promote user awareness of nature protection issues.

Employee volunteering

In summer 2012, about 30 Hydro-Québec employees, accompanied by their families and friends, organized a work crew to clean up the road to the Manicouagan generating stations. Over a distance of 10 km, they collected 200 kg of metal and one hundred bags of garbage and recyclables. All was processed according to environmental best practices and the money from deposits on refundable containers was donated to United Way/Centraide.

FUNDING AND FINANCIAL COMMITMENTS – INTEGRATED ENHANCEMENT PROGRAM

	2009	2010	2011	**2012**
Number of initiatives	26	32	45	36
Hydro-Québec funding ($'000)	1,652.7	5,910.3	2,262.6	2,494.8
Community funding ($'000)	1,719.3	2,932.5	4,395.9	6,189.5
Project value ($'000)	3,342.0	8,842.8	6,658.5	8,684.4

Hydro-Québec's annual funding varies depending on the number and size of transmission projects in progress. The 2010 amount is substantially higher because of the large sum allocated for construction of the Outaouais substation.

COMMITMENTS – FONDATION HYDRO-QUÉBEC POUR L'ENVIRONNEMENT

	2009	2010	2011	**2012**
Number of projects supported	19	15	17	17
Number of regions involved	11	9	11	12
Amount granted ($'000)	1 021	957	556	757

EXCLUSIVE WEB CONTENT

- Youth awareness
- Hydro-Québec's art collection
- Industrial tourism
- Apply for a donation or sponsorship
- Donations and sponsorships granted in 2012

OUR PERFORMANCE AT A GLANCE

	2009	2010	2011	2012
ENVIRONMENT				
Net electricity generated by Hydro-Québec (GWh)	166,809	160,733	169,017	171,442
Total net electricity generated and purchased (GWh)	203,181	203,842	207,537	213,301
Renewable energy/total energy generated and purchased (%)	97	94	97	98
GHG emissions from thermal electricity generation (t CO_2 eq.)	376,152	211,809	215,036	215,325
SO_2 emissions from thermal electricity generation (t)	1,959	1,251	1,423	1,240
NO_x emissions from thermal electricity generation (t)	6,710	5,965	6,256	6,250
GHG emissions from the vehicle fleet (t CO_2 eq.)/total number of vehicles as at December 31[a]	58,728/5,434	58,992/5,447	58,126/5,484	53,049/5,370
Production of low- and medium-activity radioactive waste (m^3/reactor)	not available	24	25	18
Energy efficiency measures: energy savings (result/target) (GWh)[b]	955/985	937/766	1,028/688	1,059/744
Employees governed by an environmental management system (number)[c]	18,757	19,823	19,124	18,414
Environmental non-compliance notices (number)	20	51	30	31
Spills reported to the authorities (number)[d]	532	747	762	822
Insulating oil recovered (thousands of litres)/reuse (%)	4,575/88.4	3,710/91.0	2,608/88.8	3,340/80.1
Water withdrawn (millions of m^3)[e]	not available	not available	710	756
Area of transmission line rights-of-way treated mechanically (%)	73	71	78	97
Area of dikes and dams treated mechanically (%)	51	73	62	46
Underground hookups on the distribution system (%)	not available	10.3	10.6	10.9
SOCIAL				
Public satisfaction (very and somewhat satisfied) (%)	91	92	93	92
Funding and financial commitments – Integrated Enhancement Program ($M)/number of initiatives	1.7/26	5.9/32	2.3/45	2.5/36
Fondation Hydro-Québec pour l'environnement ($'000)/number of projects funded	1,021/19	957/15	556/17	757/17
Donations and sponsorships ($M)[f]	22.5	18.3	18.0	17.7
Overall customer satisfaction index – other than Large-Power Customers (scale of 10)	7.39	7.60	7.53	7.52
System average interruption duration index (SAIDI) (minutes/customer)	159	139	163	150
Special payment arrangements for low-income customers (number)	32,107	41,161	61,255	57,567
Customer complaints and claims (number)	9,384	8,694	9,222	9,371
Total permanent and temporary workforce as at December 31	23,090	23,092	22,501	21,596
Employee engagement index (%)[g]	not available	not available	73	69
Work-related accident frequency (per 200,000 hours worked)[h]	not available	2.40	2.58	2.38
Percentage of payroll invested in training	3.9	3.5	3.7	3.4
ECONOMY				
Electricity sales in Québec (TWh)[i]	165.3	169.5	170.0	168.4
Revenue from electricity sales inside and outside Québec ($M)[i]	12,055	12,019	12,119	11,876
Net result ($M)[i]	2,871	2,515	2,611	860
Dividend ($M)[i]	2,168	1,886	1,958	645
Water-power royalties ($M)[i]	573	561	598	621
Total procurement of goods and services ($M)/Québec only (%)[j]	2,925/87	2,998/91	2,913/93	3,011/94
Direct jobs sustained by procurement, including purchases outside Québec (person-years)[k]	12,300	13,750	12,800	12,900
Public utilities tax ($M)[i]	188	262	244	252
Municipal and school taxes ($M)[i]	34	34	35	36
Funding for universities – contributions, commitments, research chair funding and research contracts ($M)[k]	9.6	9.8	8.5	10.9

a) Data withdrawn owing to adoption of a new calculation method

b) Includes projects of the Québec government's Bureau de l'efficacité et de l'innovation énergétiques

c) Decrease is attributable to workforce reduction. The percentage of employees governed by an environmental management system remained stable at 85%

d) The 2012 increase is essentially attributable to increased spills at transmission substations

e) According to the *Regulation respecting the declaration of water withdrawals* which applies to thermal generating stations and some workcamps using more than 75 m^3 of water per day (excludes withdrawals for PPG Canada)

f) Includes Hydro-Québec's donation to United Way/Centraide

g) New index in 2011

h) New calculation method since 2010

i) 2012 data extracted from Hydro-Québec's Annual Report

j) Excludes procurement by Société d'énergie de la Baie James

k) 2012 figures include $3.5 million recorded as donations and sponsorships

GLOBAL REPORTING INITIATIVE INDEX

All Global Reporting Initiative G3.1 performance indicators, including the Electric Utilities Sector Supplement, are dealt with fully on the Hydro-Québec Web site.

The following list shows the indicators that are covered in the *Sustainability Report 2012*.

Disclosure Number[a]	G3.1 Indicator	Page
ECONOMIC PERFORMANCE INDICATORS		
EC1	Economic value generated and distributed	6, 29, 40–42
EC2	Climate change	3, 13–14, 42
EC6	Procurement from local suppliers	11, 21, 26, 29, 42
EC7	Local hiring	21, 24, 28
EC8	Infrastructure investments that benefit local communities	40, 41
EC9	Indirect economic impacts	21–26, 29, 40–42
ENVIRONMENTAL PERFORMANCE INDICATORS		
EN1	Materials used by weight or volume	32
EN2	Use of recycled materials	32
EN3	Direct energy consumption	19
EN4	Indirect energy consumption	19
EN5	Internal energy efficiency	16
EN6	Energy consumption of products and services	8, 16–17
EN8	Total water withdrawal by source	20, 42
EN11	Land near biodiversity areas	21–27
EN12	Description of impacts on biodiversity	21–27
EN13	Habitats protected or restored	21–27
EN14	Management of impacts on biodiversity	21–27
EN15	Number of threatened species with habitats in areas affected by the organization's operations	27
EN16	Greenhouse gas (GHG) emissions	14, 42
EN17	Other relevant GHG emissions	8, 14, 42
EN18	Initiatives to reduce GHG emissions	8, 35
EN20	Emissions of NO_x, SO_x and other pollutants	14, 42
EN22	Total quantity of waste	32
EN23	Number and volume of spills	42
EN26	Environmental impact management	8, 9, 27, 31, 32
EN28	Non-compliance with environmental regulation	21, 24, 42
EN29	Environmental impacts of transportation	■
SOCIAL PERFORMANCE INDICATORS		
Labor Practices and Decent Work		
LA1	Total workforce	39, 42
LA2	New hires and employee turnover	39
LA4	Employees covered by collective bargaining agreements	38
LA7	Work-related injuries, diseases and absenteeism	37
LA10	Training	9, 38
LA11	Skills development and training	9, 38
LA13	Diversity and equal opportunity	38, 39
Human Rights		
HR4	Number of incidents of discrimination and actions taken	39
Society		
SO1	Management of the impacts of operations on communities	11, 27–29, 40, 41
SO9	Operations with impacts on communities	21–28
SO10	Prevention and mitigation measures implemented in operations with impacts on communities	21–28
Product/Service Responsibility		
PR1	Life-cycle analysis for consumer health and safety of products/services	36–37
PR5	Measurement of customer satisfaction	31

Disclosure Number[a]	G3.1 Indicator	Page
ELECTRIC UTILITIES SECTOR SUPPLEMENT		
Company Profile		
EU1	Installed capacity	2
EU2	Net energy output	2
EU3	Number of customer accounts by category	12
EU4	Length of above- and underground transmission and distribution lines	12, 42
Economy – Management Approach		
EU6	Short- and long-term electricity supply	15, 18–20
EU7	Demand-side management programs	15–17
EU8	Research and development activity and expenditure	33, 34
Economy – Performance Indicator		
EU10	Planned capacity for projected electricity demand over the long term	15, 18–19
Social – Labor Practices and Decent Work – Management Approach		
EU15	Percentage of employees eligible for retirement	39
Social – Society – Management Approach		
EU19	Stakeholder participation in decision-making process	28, 29
Social – Product/Service Responsibility – Management Approach		
EU23	Access to electricity and customer support services	31
EU24	Practices to address language and cultural barriers	31
Social – Product/Service Responsibility – Performance Indicator		
EU25	Injuries and fatalities involving company assets	37
EU29	Average power outage duration	30, 42

a) Disclosure number in bold: core indicator
Disclosure number in regular type: additional indicator

Global Reporting Initiative

Statement
GRI Application Level Check

GRI hereby states that Hydro-Québec has presented its report "Sustainability Report 2012" to GRI's Report Services which have concluded that the report fulfills the requirement of Application Level B+.

GRI Application Levels communicate the extent to which the content of the G3.1 Guidelines has been used in the submitted sustainability reporting. The Check confirms that the required set and number of disclosures for that Application Level have been addressed in the reporting and that the GRI Content Index demonstrates a valid representation of the required disclosures, as described in the GRI G3.1 Guidelines. For methodology, see www.globalreporting.org/CurrentReporting/Publ-Methodology.pdf

Application Levels do not provide an opinion on the sustainability performance of the reporter nor the quality of the information in the report.

Amsterdam, 28 March 2013

B+
GRI REPORT
GRI CHECKED

Nelmara Arbex
Deputy Chief Executive
Global Reporting Initiative

The "+" has been added to this Application Level because Hydro-Québec has submitted (part of) this report for external assurance. GRI accepts the reporter's own criteria for choosing the relevant assurance provider.

The Global Reporting Initiative (GRI) is a network-based organization that has pioneered the development of the world's most widely used sustainability reporting framework and is committed to its continuous improvement and application worldwide. The GRI Framework sets out the principles and indicators that organizations can use to measure and report their economic, environmental, and social performance. www.globalreporting.org

Disclaimer: While the relevant sustainability reporting criteria have been met, including the audit trail review, the reporter is solely responsible for the content of the report submitted to GRI as per Step 6 of the Check on 27 March 2013. GRI expressly excludes the statement being updated in any way, changed or built upon.

INDEPENDENT ASSURANCE

To Hydro-Québec Management

The Bureau de normalisation du Québec has been engaged to conduct an independent evaluation of Hydro-Québec's *Sustainability Report 2012*, which covers the period from January 1 to December 31, 2012 (Report). The Report preparation and content are the responsibility of Hydro-Québec. Our role consists in providing an independent opinion of this report.

Level of assurance and basis for our opinion

Our evaluation focused on the systems, processes and quantitative data to achieve a moderate level of assurance. It consisted in reviewing the extent of adherence to the AA1000APS AccountAbility Principles Standard (2008) and to the reporting principles for defining quality in the Global Reporting Initiative G3.1 guidelines. We also assessed the reliability of the sustainability performance information identified by the ✓ symbol in the Report.

Assurance team

The assurance team for the Report was composed of professionals, supervised by a Lead Sustainability Assurance Practitioner, and included specialists in environmental, social and economic aspects. The team members confirm that they are independent.

Assurance approach

The assurance evaluation, conducted between January and March 2013, was based on the information collected and consisted of:

- review of the main risks and issues in the industry
- review of the sustainability-related strategies, policies, objectives, management systems and measurement and reporting procedures used by Hydro-Québec
- interviews with managers in order to understand how Hydro-Québec deals with the key challenges of sustainability and how the concept of sustainability is implemented in the company
- interviews with over 50 staff members to learn among other things what measures are implemented to facilitate dialogue with stakeholders and understand the processes for collecting and presenting information about sustainability performance
- review of the Report for any anomalies, particularly with regard to the information collected, and the trends perceived in the data
- verification of over 200 data items selected from the Report by Hydro-Québec and examination of data processing procedures
- collection and evaluation of evidence supporting the data.

Adherence to the AA1000 principles

Inclusivity: *Does Hydro-Québec have a system that enables dialogue with stakeholders regarding aspects of sustainability?*

Hydro-Québec has a process that shows its commitment to consider the interests of its stakeholders.

Materiality: *Does Hydro-Québec provide material information on the significant issues relating to its stakeholders' interests?*

The process used to determine the aspects to report appears to be consistent with the organization's significant issues and its stakeholders' interests, based on the Materiality Analysis conducted in 2011.

Responsiveness: *Does Hydro-Québec have a system for responding to its stakeholders' concerns?*

In general, Hydro-Québec responds to its stakeholders' concerns.

Quantitative information and conclusion

According to our assurance process, the following items were observed:

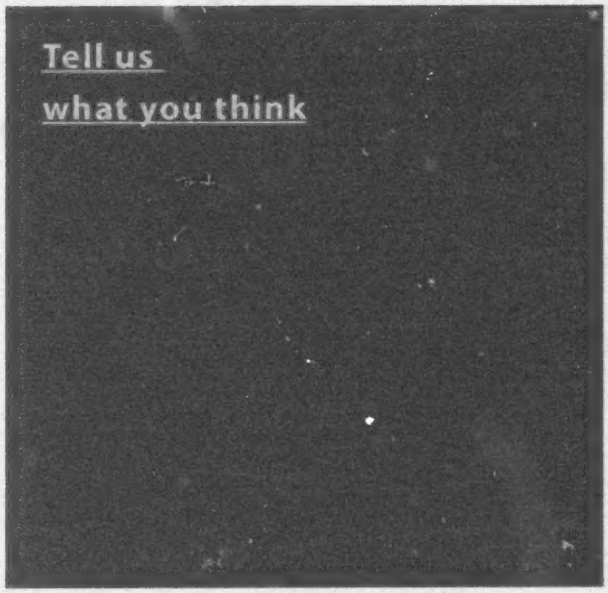
- the systems and underlying processes used for managing and reporting sustainability information are reliable
- the data selected for verification were on the whole obtainable and traceable, and the employees responsible at Hydro-Québec were able to demonstrate the origin, control methods and data interpretation in a satisfactory manner
- the sustainability performance disclosures in the Report appropriately reflect the environmental, social and economic performance of Hydro-Québec over the period covered by the Report.

Overall, the assurance team considers that, based on the approach used, the information contained in the *Sustainability Report 2012* appears fair in all material respects and presents a reliable account of Hydro-Québec's sustainability performance achieved during the period.

Montréal, March 28, 2013

Jean Rousseau, Eng.
Director
Bureau de normalisation du Québec

David Simpson
Lead Sustainability Assurance Practitioner (CSAP)



UNITS OF MEASURE

¢/kWh	cent or $0.01 per kilowatthour
$'000	thousands of dollars
$M	millions of dollars
$B	billions of dollars
V	volt (a unit for measuring voltage)
kV	kilovolt (one thousand volts)
W	watt (a unit for measuring power)
kW	kilowatt (one thousand watts)
MW	megawatt (one million watts)
GW	gigawatt (one million kilowatts)
Wh	watthour (a unit for measuring electric energy)
kWh	kilowatthour (one thousand watthours)
MWh	megawatthour (one million watthours)
GWh	gigawatthour (one million kilowatthours)
TWh	terawatthour (one billion kilowatthours)
µW/m²	microwatt (one millionth of a watt) per square metre
t	tonne (metric ton)
g CO_2 eq.	gram of CO_2 equivalent
t CO_2 eq.	tonne of CO_2 equivalent
kt CO_2	one thousand tonnes of CO_2
MMBtu	million British thermal units

© Hydro-Québec
Affaires corporatives
et secrétariat général

Reproduction authorized with
reference to source

Legal deposit – 2nd quarter 2013
Bibliothèque et Archives nationales
du Québec
ISBN 978-2-550-66874-9 (PDF)

2013G015A

Ce document est également publié en français.

This is a translation of the original French text.

www.hydroquebec.com/
sustainable-development

Hydro Québec

2013G015A